Intimacy, Libido, Depressive Symptoms and Marital Satisfaction in Postpartum Couples

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Rose Marie Eckert Kunaszuk

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Dedications

"The reward of a thing well done is to have done it." Ralph Waldo Emerson (1860)

This work is dedicated to my family.

Especially to my husband, Jay, who has supported all my endeavors,

no matter the cost.

Thank you.

I love you.

To all my children, Alix & Jason, Jayne & Tim, Jake, Orion

I hope you are never too old to want to learn and try something else. I love you all.

To my mother, Rose Marie

What can I say? I love you and thank you. I think Daddy would be happy.

To Eleanor and Jimmy and Kathy and Uncle and AJ.

Thanks for your unending support.

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Abstract
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in
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Rose Marie Eckert Kunaszuk
Jana Mossey, PhD

Objective: This study was designed to explore issues surrounding the intimate and sexual relationship of postpartum couples and the impact of those relationships on marital satisfaction.

Methods: A non-experimental, cross-sectional survey design was used. A convenience sample of recent postpartum couples, having given birth to their second or third child and being between six and 24 weeks postpartum, were recruited into the study. The variables examined in this analysis were libido level, intimacy level, depressive symptoms, demographic variables, and as the outcome, marital satisfaction. Univariate and multivariate analyses were conducted to assess relationships.

Results: Twenty seven postpartum couples participated in this study. Males reported higher levels of libido than females. While libido level was positively associated with marital satisfaction, for both genders, high emotional intimacy buffered the negative effects of low libido on marital satisfaction.

Conclusions: Health care providers can provide support to the postpartum family with knowledge gained from this study. It is important to assess both mothers and fathers of child-bearing families for issues related to intimacy. Fathers should be encouraged to participate in the prenatal and postnatal care of their wives so that health care providers can develop a sense of the family dynamics and be ready to provide support for the new family as needed.

Chapter 1: Introduction and Overview

Introduction

Sexuality after childbirth is a frequently occurring concern in clinical practice with postpartum couples. Women who are in the first year postpartum often report decreased interest in sexual activity (DeJudicibus & McCabe, 2002; Fischman, Rankin, Soeken, & Lenz, 1984; Olsson, Lundqvist, Faxelid, & Nissen, 2005) and sometimes report distress over relationships with their partners regarding this lack of desire (Ahlborg, Dahlof, & Hallberg, 2005; O'Brien & Peyton, 2002; Thorp, Krause, Cukrowicz, & Lynch, 2004). Since approximately four million babies are born in the United States every year (United States Department of Health and Human Services [USDHHS] 2005), the issue of postpartum intimacy and libido affects approximately 8 million new parents.

The quality of the parents' intimate relationship is an important factor in their life satisfaction after the birth of a baby (Ahlborg et al., 2005). Many parents are unprepared for the physical and emotional changes that occur after the birth of a child (Thorp et al.). Therefore, the study of the couple when a new child is brought into the home is of great importance to improve understanding of postpartum relationship issues.

Background

Sexual activity and intimacy have been described as outward manifestations of love and caring between two people (Fischman et al., 1984). The birth of a healthy new child is both an exciting event and a time of potential marital discord, due to significant disruption in the intimate and sexual lives of the parents (Curran, Hazen, Jacobvitz, & Feldman, 2005; Reamy & White, 1987).

The focus of a few early studies on postpartum women was to determine the relationship between pain and resumption of intercourse in first time mothers (Barrett et al., 1999; Byrd, Hyde, DeLamater, & Plant, 1998; Connolly, Thorp, & Pahel, 2005; Lumley, 1978; Signorello, Harlow, Chekos, & Repke, 2001). Recently there has been an

increased interest in studying other areas of postpartum sexuality, such as, psychological factors, attitudes to and occurrence of orgasm, and relationship quality (Ahlborg et al., 2005; DeJudicibus & McCabe, 2002; Dixon, Booth, & Powell, 2000; Otchet, Carey, & Adam, 1999; Signorello et al.). Little attention has been paid to the sexual and overall adjustment of new fathers (de Montigny & Lacharite, 2003; DeJudicibus & McCabe; Adams, 1988). A gap in the literature exists regarding the fathers' reactions to the postpartum period and his influence on marital satisfaction at this time. Research is needed to document the perspective of the mother *and* the father regarding intimacy, libido, depressive symptoms and marital satisfaction in the postpartum period, for example, what impact does the tendency of the woman to desire less sex postpartum have on the relationship with her partner? This study was designed to examine changes in the intimate relationship during the postpartum period, not the life of the relationship.

It is estimated that 13% of women suffer a major depressive episode in the first six to eight weeks postpartum (Beck & Gable, 2001; Beeghly, Weinberg, Olson, Kernan, Riley, & Tronick, 2002; Dennis, 2005; Ferber, Granot, & Zimmer, 2005; Lumley, 2005; Mosack & Shore 2006; Peindl, Wismer, & Hanusa, 2004). Therefore, it is also of interest to question whether the occurrence of depressive symptoms experienced by either the mother or the father in the postpartum period has an effect on the quality of the intimate relationship of the couple.

The rationale for this study was to increase the body of knowledge in the area of postpartum sexuality and obtain data that will inform health care providers in dealing with issues occurring at this time in a couple's life. The objective of the study was to determine whether discrepancies between the man and the woman in perceived intimacy and libido exist postpartum, and to examine the outcome of those discrepancies in terms of marital satisfaction.

Specific Aims

The specific aims and study hypotheses were:

1. Describe the levels of libido, perceived intimacy, depressive symptoms, and marital satisfaction in members of post-partum couples who have had at least one previously healthy child and identify the occurrence of within couple discrepancies on these characteristics.
2. Investigate the relationships between libido, perceived intimacy, depressive symptoms and marital satisfaction among the members of post-partum couples.

   H_1. Within individuals, high perceived intimacy will diminish the negative effects on perceived marital satisfaction due to reported low libido.
3. Investigate the relationships between libido discrepancy, discrepancy in level of perceived intimacy, depressive symptoms experienced by each couple member, and couple marital satisfaction level among the post-partum couples.

   $H_{2.}$ High intimacy within couples will diminish the negative effects on the couple level of marital satisfaction associated with a discrepancy in the libidos reported by each couple member.
4. Identify the strength and direction of associations between the woman's breastfeeding status, her body image, and her fatigue level on the libido and perceived intimacy she or her partner reports

   $H_{3.}$ Breastfeeding status, poor body image, high fatigue level will have independent negative effects on the libido of the postpartum woman, but will be unrelated to the libido of her partner.
5. Evaluate the impact of depressive symptoms experienced by either partner on his/her libido, overall sexual relationship satisfaction and perceived intimacy and that of his/her partner.

$H_{4.}$ A high depressive symptom level experienced by either partner will have a negative impact on the individual's and his/her partners current level of marital satisfaction.

Significance

The significance of this research lies in the unique opportunity to investigate the relationships between libido, partner intimacy, and marital satisfaction as reported by both members of the postpartum couple. While there is some research regarding the experiences and perspectives of the postpartum mother, few studies that included the postpartum father have been identified. In the absence of information on both couple members, it is not possible to describe the couple experience, to identify risk factors for negative couple or family outcomes, or to develop interventions to prevent any potential negative outcomes. This study has the potential to provide insight needed by healthcare providers to assist postpartum couples who have difficulty with intimacy, libido or depression. Newly acquired knowledge regarding postpartum relationships, and specifically, among intimacy, libido, depressive symptoms and relationship quality, will assist health care providers to better serve their patients and possibly ameliorate some of the issues and consequences facing childbearing couples today.

Definition of Terms

Postpartum period: The postpartum period is generally thought of as the time immediately following the birth of a baby, generally six weeks (Cowlin, in Varney, Kriebs, & Gegor, 2004). For the purpose of research, this period was defined as up to twelve months following the birth of a child.

Partner Intimacy**:** The most general meaning of intimacy is "the depth of exchange, both verbally and/or nonverbally, between two persons, which implies a deep form of acceptance of the other as well as a commitment to the relationship" (Gilbert, 1976, p. 221). Intimacy is casually assumed to be a characteristic of both marital and

other family relationships, but has been infrequently operationalized or conceptualized (Schaefer & Olson, 1981).

Libido: Libido is a Latin word that means 'desire', and has been defined as the urge for, interest in, or drive to seek out sexual objects or to engage in sexual activity (Barton, Wilwerding, Carpenter, & Loprinzi, 2004; Diamond, 2003). People's expectations regarding their sexual encounters include several different motivators and may help determine their sexual and relationship satisfaction (Case, 1998).

Depressive symptom level: Depressive symptom level refers to the number and intensity of symptoms that are indicators of major depression. This is consistent with the characterization of depression as a spectrum disorder with no symptoms at one end of the spectrum and uni-polar major depression at the other end (Judd & Akiskal, 2000). Specific symptoms assessed include: pervasive depressed mood; loss of interest; feelings of guilt and worthlessness; feelings of helplessness and hopelessness; psychomotor retardation; loss of appetite and sleep disturbance (American Psychiatric Association, 2000).

Marital Satisfaction: Marital satisfaction is thought of as an attitude of greater or lesser favorability towards one's own marital relationship and is an important topic to many people (Case, 1998; Miller, 1976; Roach, Frazier, & Bowden, 1981). Satisfaction within a relationship is a very personal issue and may be dependent upon time and situational factors. This study examined the issue of marital satisfaction at a specific time, the postpartum period, and in a specific situation, that of having the second, or subsequent, children.

Chapter 2: Review of the Literature

Introduction

The guiding framework for the study of libido and intimacy in the postpartum period is adapted from work by Rosemary Basson, a researcher from the University of British Columbia. Her model, called the "alternative model of female sex response cycle" (2001), identifies three factors that influence the receptivity for sexual stimuli: 1. the wish to enhance intimacy; 2. the anticipation of a satisfying emotional and physical experience; and, 3. the presence of sexually specific and other intimate stimulus that are necessary for each individual woman. The appeal and effectiveness of the stimulation may well depend more on its context; for example, caring, consideration, safety and privacy, than on the details of the physical stimulation itself. This model shows a receptive type of desire stemming from arousal which itself results from the deliberate choice to find and be receptive to sexual stimuli (Figure 1).

Masters and Johnson (1966) described a linear type of sexual response which assumes orgasm as the goal. This may not be the case for all women, as physical pleasure may occur in the absence of orgasm (Bernhard, 2002). If one accepts this assumption, Basson's (2001) framework can be appropriately applied to a population of postpartum women. The researcher's clinical experience has provided significant anecdotal evidence that many women feel abnormal due to a lack of sexual desire, especially during the first year postpartum. One goal of this study was to measure and explore the degree and extent of lack of desire in the postpartum period.

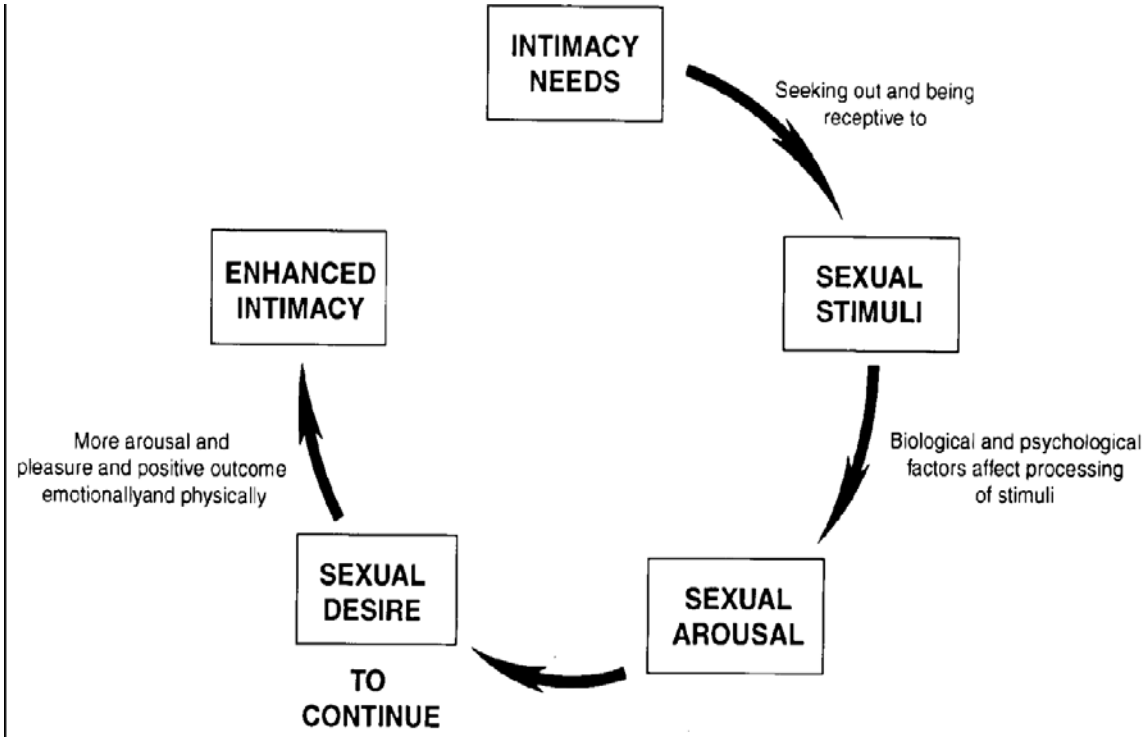

Figure 1. Alternative model of female sexual response cycle (Basson, 2001).

Postpartum Sexuality

Although there has been an increase in research regarding sexual health after childbirth, the sexual adjustment of new parents, especially fathers (Ahlborg, et al., 2005; Fischman et al., 1986) is still under-studied. Studies to date primarily address the time to resumption of sexual intercourse (Ahlborg et al., 2005; Connolly et al., 2005; Reamy & White, 1987; Signorello et al., 2001; van Sydow, 1998) which has generally been found to be by four months for most postpartum women, and the prevalence of dyspareunia (Barrett et al., 1999; van Brummen, Bruinse, van de Pol, Heintz & van der Vaart, 2006; Byrd, Hyde, DeLamater & Plant, 1998; Connolly et al.; Lumley, 1978; Signorello et al.). Research in other areas of postpartum sexuality includes examination of psychological factors (DeJudicibus & McCabe, 2002; Otchet et al.,1999); general health status (Otchet, Carey & Adam, 1999; Saurel-Cubizolles, Romito, Lelong & Ancel, 2000), orgasm (Connolly et al.); and, relationship quality (Ahlborg et al.; Dixon et al., 2000). "Childbirth brings about a change in the sexual relationship" (Barrett et al., pg. 180; Fischman et al., 1986) of new parents. However, sexual satisfaction has not been found to be related to mode of delivery (van Brummen et al.).

Overall, the literature on postpartum sexuality supports the hypothesis that there is a relationship between libido and intimacy issues (Ahlborg et al., 2005; DeJudicibus & McCabe, 2002; Dixon et al., 2000). Depressive symptoms may interfere with a return to intimacy, both sexual and emotional (Carroll et al., 2005). Issues of postpartum sexuality encountered by clinicians every day in routine obstetric and gynecologic care include women's reports of feeling fat, leaky and without energy or sex drive. Many parents are unprepared for the physical and emotional changes that occur after the birth of a child. As noted by Ahlborg and colleagues, sexuality is just one part of the intimate relationship of couples. Many complex factors affect the couple's experience, especially

when they enter parenthood. This study contributes to the evidence base by addressing these issues in postpartum couples.

Libido

Libido is a Latin word that means 'desire', and has been defined as the urge for, interest in, or drive to seek out sexual objects or to engage in sexual activity (Barton, Wilwerding, Carpenter, & Loprinzi, 2004; Diamond, 2003). It is a species-typical phenomenon, a complex construct that includes generation of spontaneous sexual thoughts and fantasies, attentiveness and responsiveness to erotic stimuli, awareness of sexual cues and the arousal response to sexual stimuli; these elements are strongly influenced by social and cultural factors (Levine, 1984; Soran & Wu, 2005).

The first step in the traditional model of sexual arousal and orgasmic release is the occurrence of sexual thoughts, fantasies or neediness and hunger. This is the psychological stimulation necessary to experience the build up and release of sexual tension for both the physiological enjoyment of that process and the avoidance of negative feelings associated with its deprivation (Arcos, 2004; Carson, 2006).

Males and females experience pleasure from different stimuli owing to the interplay of the differing sex hormones (Salamon, Esch, & Stefano, 2005). Physiological processes play an important role in human libido as humans learn to feel sexual desire in certain situations and at certain times (Diamond, 2003). With biological roots, both endocrine and neurochemical, with both motivational and relational components, complex interplay among these physiological processes can be either inhibiting or enhancing (Bancroft, 2005; Barton et al., 2004; Basson, 2002; Graziottin, 2000). The male and female sexual cycle is regulated by the amygdala through mediation of the estrogen/androgen related signaling molecules via coupled nitric oxide (NO) release; where NO acts as a neurotransmitter and a locally acting hormone (Salamon et al., 2005).

The physiological functional integrity of the male sexual organ is dependent not only on the nervous and muscular tissues of the corpora cavernosa, but also on the endocrine and psychic factors from higher centers of the brain (Soran & Wu, 2005). An erection occurs, in part, due to release of NO in specific nerve endings in the corpora cavernosa (Murphy & Lee, 2002; Soran & Wu). The role of testosterone in male sexual function is complex, as it is the primary male hormone synthesized in the testes and regulates many physiologic functions, including libido as well as local mechanisms for penile tumescence (Evans, 2004; Soran & Wu). There is a positive effect of testosterone on male libido (de Graaf, Brouwers, & Diemont, 2004; Soran & Wu). Attempts to have intercourse occur more frequently by the male around the time of female ovulation. This is possibly due to subtle cues from the woman or the woman's production of cycle-dependent pheromones (Wilcox et al., 2004).

"A spontaneous sexual act represents the final manifestations of a series of complex and meticulously synchronized processes" (Soran & Wu, 2005, p. 28). Multiple studies associate libido with the peri-menopausal or menopausal states, or relate it to disorders of sexual desire or female sexual dysfunction (Basson, 2001; Dennerstein, Lehert, & Dudley, 2001; Graziottin, 2000; McCoy, 2000; Wiegel, Meston, & Rosen, 2005).

Intimacy

Intimacy is a broad concept commonly used in practice disciplines but rarely succinctly defined. The context around the word 'intimacy' is often the key to understanding the definition. "Our culture, unlike others, places a high value on intimacy, and although not restricted to marriage, most get married to seek and maintain it. It is considered to be the reward and benefit of friendship" (Schaefer & Olson,1981, p. 47). In 2006, there were more than two million marriages in the United States, or 7.5 per 1,000 total population (USDHHS, 2006). Intimacy is an integral part of every

relationship, whether by its presence or its absence. Recent empirical evidence points to the importance of intimate relationships for adult personality development. The ability to form intimate relationships is critical for personal well-being (Katz & Joiner, 2002). Intimacy among postpartum couples is an important focus for research since the postpartum period is a time of increased stress for couples (O'Brien & Peyton, 2002). Intimacy quality is an indicator of relationship strength, and it is the foundation upon which strong relationships are maintained and enhanced (O'Brien & Peyton). In order to help postpartum couples adjust their relationships to the new family configuration, one must have a measure of the intimacy level of that couple. A working definition and comprehensive understanding of the concept of intimacy is, therefore, essential to this work.

There are several types of intimacy discussed in the literature, with its most general meaning providing a common thread: "the depth of exchange, both verbally and/or nonverbally, between two persons, which implies a deep form of acceptance of the other as well as a commitment to the relationship" (Gilbert, 1976, p. 221). Schaefer and Olson (1981), Timmerman (1991), and Heller and Wood (1998) all propose definitions of intimacy. Specific types of intimacy found in the literature include romantic intimacy (Katz & Joiner, 2002; Moss & Schwebel, 1993), physical or sexual intimacy (Ahlborg et al., 2005), emotional intimacy (Schaefer & Olson); and other-validated and self-validated intimacy (Schnarch, 1997). Each type of intimacy has its own definition; however, some constructs are common to all types.

Constructs commonly associated with intimacy are self-disclosure (Gilbert, 1976; Timmerman, 1991), self-esteem (Gilbert; Katz, & Joiner, 2002), commitment (Heller & Wood, 1998; Katz & Joiner; McCabe, 1999; Moss & Schwebel, 1993; White et al., 1990), closeness (Bagarozzi, 2001; Moss & Schwebel; Timmerman), relationship satisfaction (Ahlborg et al., 2005; Katz & Joiner; McCabe; Schafer & Olson, 1981; Schnarch, 1997;

White et al.), and sexual activity (Ahlborg et al.; McCabe). There is an extensive body of literature on the psychological factors that affect intimacy; however, a more detailed review of this literature is beyond the scope of the current study.

Future research on intimacy should incorporate the associated concepts of self-disclosure, self-esteem, commitment, closeness, relationship satisfaction and sexual activity, in order to deepen the clinician's understanding of relationship dynamics and provide direction to move relationships toward higher quality and deeper intimacy. Especially in the postpartum period, when relationships can be strained by multiple concerns, intimacy is an important and salient concept and an important area of research for nurses and other health care providers of new families. Clinicians need tools and knowledge to help couples function as they build new relationship formations. With an increased understanding of what drives intimacy needs and issues, public policy makers can incorporate this knowledge into the development of policies which support the young and growing family unit and increase the success of couples in relationship building and maintenance. These are important areas for future research and practice as the integrity of the family is strained and the divorce rate is climbing, now at 3.6 per 1,000 population (USDHHS, 2006).

Postpartum Depression

Depression affects approximately 12 million women per year, with a range of 5 to 25% being affected in the postpartum period (Huang, Wong, Ronzio, & Yu, 2007). Frequently reported statistics show an average of 13% of women experience postpartum-onset major depression (PPMD) (Beck & Gable, 2001; Beeghly et al., 2003; Mosack & Shore, 2006). One out of eight women suffers an episode of depression occurring six to eight weeks after childbirth (Fergerson, Jamieson, & Lindsay, 2002; Lumley, 2005; Weier & Beal, 2004; Wisner, Parry, & Piontek, 2002). Considering the approximately four million births per year in the United States, this affects nearly a half-

million women and their families (Wisner et al.). Identification and treatment of postpartum depression should be considered a critical public health goal (Peindl, Wisner, & Hanusa, 2004), as health consequences for the mother, child and family are well documented (Dennis, 2005). This condition interferes with infant bonding, and women with a history of postpartum depression (Mosack & Shore) are at a substantially increased risk of its recurrence in subsequent postpartum periods (Bloch et al., 2000; Wisner et al.).

Postpartum blues occur in the days following delivery and are short lived, but they have been found by some researchers to be associated with postpartum depression (Ferber, Granot, & Zimmer, 2005). In a recent study by Huang and colleagues, (2007), it appears that U.S. born mothers were more likely to have moderate to severe depressive symptoms compared to foreign born mothers. Fatigue (Bozoky & Corwin, 2002) and poor body image (Walker, Timmerman, Kim, & Sterling, 2002) have been found to be predictors of postpartum depression. There is an association in the literature of antenatal psychosocial risk factors and poor postpartum outcome, including postpartum depression and intimate relationship dysfunction (Carroll et al., 2005). According to Huang and Mathers (2006) there is a strong association between postpartum depression and poor partner relationship.

The Edinburgh Postnatal Depression Scale (EPDS) is the most commonly used tool for the screening and diagnosis of postpartum depression in the obstetrical and gynecological clinical setting (Beck & Gable, 2001; Bloch et al., 2000; Ferber et al., 2005; Fergerson et al., 2002; Huang & Mathers, 2006; Peindl, Wisner, & Hanusa, 2004; Wisner et. al, 2002), although it has not been used in men. The Center for Epidemiology Scale for Depression (CES-D) is another instrument which has been used with postpartum women (Beeghly, 2002; Beeghly et al., 2003; Bozoky & Corwin, 2002; Huang, Wong, & Ronzio, 2007; Mosack & Shore, 2006; Surkan et al., 2006; Walker et

al., 2002) and has been validated in the general population (Chan, Orlando, Ghosh-Dastidar, Duan, & Sherbourne, 2004; Radloff, 1977).

Marital Satisfaction

Marital satisfaction is thought of as "an attitude of greater or lesser favorability towards one's own marital relationship" (Roach, Frazier & Bowden, 1981, p. 537) and is an important topic to many people (Case, 1998; Miller, 1976). The concept of marital quality, "defined as a subjective evaluation of a married couple's relationship" (Arrindell, Boelens, & Lambert, 1983, p. 293), reflecting numerous characteristics of marital interaction and functioning, is concerned with how a marriage or long lasting intimate relationship functions and how the partners feel about that relationship. The term is often used interchangeably with marital satisfaction, marital adjustment, marital success and marital happiness (Arrindell, et al.). The Locke-Wallace Marital Adjustment Test has been widely used to assess marital quality over the last thirty years and continues to be used despite the development of newer scales (Freeeston & Plechaty, 1997).

The concept of marital satisfaction has a prominent place in the study of marriage and family relationships and is probably the most frequently studied dependent variable in this field, despite disagreement over its defining criteria (Arrindell et al., 1983; Spanier, 1976). Marital satisfaction has a central role in individual and family well-being and benefits to society; thus, there is a large body of research on factors that influence marital satisfaction; however, much of it focuses on newlyweds or couples in counseling (Apt, Hurlbert, Pierce, & White, 1996; Kurdek, 1998; Miller, 1976). Factors that influence marital satisfaction include the ability to give and receive positive support, the use of blame, anger or rejection in conflict resolution, self-disclosure and partner disclosure, ethnicity, sexual satisfaction, presence of children, number of marriages and length of marriage (Jose & Alfons, 2007; Kurdek, 1995; Schneewind & Gerhard, 2002).

There appears to be no good clinical or theoretical reason to believe that the quality of one's sexual or marital relationship is markedly affected by age, gender, or socioeconomic status or by either a liberal or conservative stance concerning human sexual expression (Hudson, Harrison, & Crosscup, 1981). People have certain expectations of what their intimate relationship will be like, and how these expectations are met often determines how much pleasure one gets from that relationship (Case, 1998). There is a decline in positive feelings regarding the marital relationship among first-time parents and a normative decline in marital satisfaction in the early years of marriage (Hackel & Ruble, 1992; Kurdek, 1995). Sexual satisfaction is related to relationship satisfaction; sexually satisfied women were found to have higher relationship satisfaction than sexually dissatisfied women according to Hurlbert and Apt (1994). Postpartum women and their partners with less sexual intimacy and greater conflict appear less satisfied with the marital relationship (Hackel & Ruble). It has been reported that the presence of children decreases marital satisfaction, while increased child spacing increases satisfaction; socioeconomic status has an indirect effect on marital satisfaction (Hatch & Bulcroft, 2004; Miller, 1976). Role transition, or role strain, is one aspect which could affect marital satisfaction, and it appears that those couples who prepare for the transition to parenthood often have decreased marital satisfaction. A likely explanation for this apparent contradiction is expectancy disconfirmation; these couples have higher expectations; so when unmet, they experience greater dissatisfaction (Hackel & Ruble). Age appears to have a negative effect on sexual satisfaction among first married as does one's level of education (Jose & Alfons; Gold, 2006).

Summary

Basson's 2001 "Alternative model of female sexual response" serves as the framework for this study of intimacy, libido, depressive symptoms and marital

satisfaction in postpartum couples. The literature on postpartum sexuality has traditionally focused on adjustment after having first babies and time to resumption of intercourse in postpartum women. Recently, the focus of study has included fathers. Libido is a complex construct including both physiological and psychological components. The concept is often studied in terms of dysfunction, especially in peri-menopausal and post-menopausal women. Intimacy is commonly used in practice disciplines, but with little agreement on the definition. An integrative review of the literature was undertaken for this study yielding a definition for research: "an exchange between two persons which implies deep acceptance of the other as well as commitment to the relationship". Commonly associated constructs were reviewed and areas for future research were delineated especially as pertaining to advanced nursing practice. Depression in the postpartum period occurs in one of eight women within six to eight weeks of giving birth, and with approximately four million births per year in the United States, has the potential to affect nearly one-half million women and their families. It is a public health crisis which demands attention, as it has been shown to affect intimate relationships as well as early childhood development. Finally, marital satisfaction is a commonly studied concept in marriage and family relationships. It plays a central role in individual and family well-being and has benefits to society. The depth of literature on marital satisfaction spans more than fifty years and includes definitions of marital satisfaction as well as factors which influence martial satisfaction. There is a lack of recent literature in the area of postpartum couples' marital satisfaction.

Chapter 3: Design and Methodology

Introduction and Overview

The long range goal of this research was to increase the evidence base in the area of postpartum sexuality and to provide health care providers information that will enable the development of more effective services to address issues occurring at this time in a couple's life. The specific purpose of this study was to gain insight regarding: the perceptions of intimacy and sexuality held by post partum couples, the impact on such perceptions of depressive symptoms experienced by either men or women, and the relationships of perceived sexuality, intimacy levels, and depressive symptoms on postpartum marital satisfaction. A non-experimental, cross-sectional survey design allowed exploration of these topics in a convenience sample of recent postpartum couples. The study methods and procedures are presented as follows: 1) methodological considerations pertinent to study planning; 2) study recruitment and enrollment; 3) data management; and 4) data analyses.

Methodological considerations

A power analysis was conducted prior to initiation of this research to determine appropriate sample size to achieve a power of 0.80 with an alpha ≤ 0.05 and a moderate effect size of 0.5. Sample size was determined using both ethical and statistical considerations (Duffy, Munro, & Jacobsen, 2005). Power analyses are conducted to estimate the sample size necessary to achieve a pre-determined likelihood of avoiding a Type II error; to determine the acceptable effect size, and magnitude of the effect of the independent variable on the dependent variable. They are also undertaken to define the level of statistical significance, the probability of a Type I error and the likelihood that the alternative hypothesis will be accepted if false. These parameters were entered into an online power analysis program, G*Power 3, (Faul, Erdfelder, Lang, & Buchner, 2007)

to obtain a sample size which would allow meaningful results to be obtained. Based on the results of these analyses, a sample of 88 couples was recommended.

Variable Definition and Variable Measurement

Based on the literature review, the following variable categories were targeted for inclusion in the study survey instrument, a self-administered questionnaire to be completed in private by each couple member.

Socio-demographic characteristics.

The following demographic data were gathered: age, gender, ethnicity/race, socioeconomic status, occupation and employment status, and educational level. The socioeconomic variable categories are similar to those used in the NHANES studies conducted by the National Center for Health Statistics (USDHHS, CDC, 2005).

General health, home environment, obstetric, post-partum and infant variables.

To allow description of the individuals and the couple, information on the general health of the individuals, length of relationship, number of marriages, number of weeks since the birth, the type of delivery and other obstetric factors was obtained. Additional questions were included to assess the age and adjustment of the other children in the household, child care arrangements and help at home, breastfeeding, sleep patterns and fussiness of baby, as well as fatigue level and body image satisfaction. For purposes of this research, the postpartum period was considered as the immediate twelve months following the birth of a child. *Time from delivery* was considered a continuous variable for analysis.

Primary Study Independent Variables.

Libido

In this study, libido referred to the desire to engage in sexual activity as measured by the *Sexual Interest and Desire Inventory (SIDI)* (Clayton et. al, 2006). The Sexual Interest and Desire Inventory-Female (SIDI-F) is a new instrument of 13 items,

developed to assess the severity and progress in treatment of non-menopausal women with hypoactive sexual desire disorder (HSDD) (Clayton, et. al, 2006). It was designed to be clinician administered and it can be used to quantify severity of symptoms in women with diagnosed HSDD. Items included in the scale assess overall sexual relationship satisfaction, receptivity, initiation, desire-frequency, affection, desire-satisfaction, desire-distress, thoughts-positive, erotica, arousal-frequency, arousal ease, arousal continuation and orgasm. The score range is 0-51, with higher score indicating less severity of symptoms. SIDI has been shown to have excellent internal consistency, with Cronbach's alpha at 0.90. Validity was assessed by observation and correlation with other validated instruments of sexual functioning (Sills, et. al, 2005*).* The psychometric evaluation of this instrument was performed with a sample of 21 volunteers, including women without diagnosed sexual dysfunction. These women scored higher on all items than did those women diagnosed with sexual dysfunction; confirming the ability of the tool to distinguish between affected and non-affected subjects (Clayton, et. al, 2006).

Surprisingly, there are few validated instruments which are appropriate for the postpartum couple population. Having considered existing alternatives, the SIDI was selected because of its item content and psychometric properties.

A sub-score, *Libido Level*, comprised of five items taken from the SIDI, that tapped receptivity, initiation, desire satisfaction, desire frequency and desire distress, was generated by summing over item scores. Scale scores ranged from 0 to 21. A categorical version of the Libido Level variable was also created. The combined male/female mean of the five item sub-score was the cut point for the categorical variable. The high level was any value above the mean and the low level was at or below the mean.

According to Masters and Johnson (1966), the postpartum period can be likened to the postmenopausal state which is a time of steroid starvation (pg. 151), typically with vaginal atrophy, decreased lubrication and decreased expansion of the vagina during sexual stimulation. The SIDI instrument was written in a way that examines desire and frequency of sexual activity in a sensitive manner, and, more importantly, questions are worded in a manner to detect the postmenopausal state described above. The choice to use this instrument over others appeared appropriate because of this. Moreover, the clinical experience of this investigator confirmed the notion that the postpartum period and the postmenopausal state have many similarities. In addition to physiological hormonal changes, this investigator has observed that postpartum women also have a tendency to have less sexual activity due to the time and energy constraints of a new baby. This does not necessarily mean that women have less desire to engage in sexual activity. Because the SIDI taps interest and desire as well as sexual frequency and satisfaction, it appeared to be an appropriate tool for use with postpartum women.

There was no version of the SIDI for males developed, nor has it been used in the male population, however, in personal communication with the copyright holder (Pyke, 2006), permission was granted to use it in a mixed population. This researcher was encouraged to perform a validation step for a SIDI-Male. The validation step was conducted as follows:

Nine males without any diagnosed sexual disorders were identified and agreed to participate in an interviewer administration of the SIDI questions. Following the reading of each question, the male participants were asked:

"Do you understand the question?

Are the answers clear, sufficient and fitting?"

Upon administration of all 13 SIDI items, the participants were asked:

"Is there any other topic important to you about the loss of sexual interest?"

Changes were made to the scale in two questions related to arousal; the parenthetical example for arousal was altered to include 'having an erection'. The results are included below.

Table 1.

Sexual Interest and Desire Inventory-Male Validation

	N	Mean	SD
Age	9	37.33	11.65
Education Level	9	17 years	3

None of the participants felt the questions were intrusive or that the scale was lacking any significant areas of interest. All nine men were in committed relationships of more than one year. Cronbach's alpha for this scale in this trial was .70. Based on statistical analysis of the validation step for this SIDI-Male version, the research team felt it was feasible and appropriate to use this instrument for the libido measurement in this study.

Perceived Intimacy

Intimacy is an ongoing process which occurs in relationships and involves self-disclosure and commitment to the relationship (Gilbert, 1976; Heller & Wood, 1998;

Schaefer & Olson, 1981; Timmerman, 1991). Intimacy and it subcomponents were measured by the PAIR Inventory. *The Personal Assessment of Intimacy in Relationship Scale (PAIR)* (Schaefer & Olson, 1981) is a tool developed for use in research, education and clinical practice and has been shown to be both reliable and valid. A two part scale; each containing 36 items, it measures five types of intimacy: emotional, social, sexual, intellectual, and recreational and includes a conventionality scale which measures the extent to which a person is giving answers he or she thinks are right. The original scale allows persons to describe their intimate relationships as they perceive the relationship to be as well as the expected level, or how they would like the relationship to be. The PAIR scale consists of six 6-item subscales. All of the scales have alpha coefficients of at least 0.70 (Schaefer & Olson, p.57*)*. The score range for each subscale is 0 to 96, with higher scores on the perceived scale indicating higher intimacy. The purpose of the PAIR is to describe the perceived intimacy of any given couple. No studies were found in the literature review in which the PAIR inventory was used with postpartum couples.

Level of Intimacy was considered as a continuous as well as a categorical variable. Both variable forms were derived from the score of the emotional intimacy dimension of the Personal Assessment of Intimacy in Relationships Scale (PAIR), perceived level. The categorical form of the variable was developed by using the combined male/female sample mean as the cut point. Scores at the mean or below were considered low and those above the mean were considered high.

Depressive Symptoms

In this study, depressive symptoms were measured by *The Center for Epidemiologic Studies Depression Scale (CES-D)* (Radloff, 1977), a 20-item instrument used to measure depressive symptoms in the general community. *Depressive*

Symptoms were treated as an individual score, not a couple score, and considered as both a continuous and a categorical variable.

Depressive symptoms can be both affective and somatic, and include depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite and sleep disturbance. The CES-D measures the current level of depressive symptomology, especially the affective component-depressed mood. It is a 20-item self report scale with a score range of 0-60; a score of >16 indicates a high likelihood of the presence of clinically significant depression. In pregnant women, a second cutoff score of 23 or higher has been used as some symptoms measured by CES-D overlap with pregnancy symptoms. It is reported by some investigators that scores of 23 or higher are indicative of a major depressive disorder, but it is felt unlikely that a pregnant woman would score this high simply due to symptoms of pregnancy (Orr, Blazer, & James, 2006). Moreover, the CES-D has few items which measure the confounding somatic symptoms of childbirth (Bozoky & Corwin, 2002). In a recent study by Mosack and Shore (2006), use of the CES-D as a screening instrument for postpartum depression was again supported.

The 20 CES-D items are measured on a four point scale, 0-3 (none of the time to all of the time). The symptom domains measured are depressive affect, somatic, well-being and interpersonal difficulties. The CES-D has been shown to exhibit excellent psychometric properties in many different populations, including postpartum women (Beeghly, et. al, 2002). Consideration was given to the use of the Edinburgh Postnatal Depression Scale (EPDS), as this is the most commonly used tool for the screening and diagnosis of postpartum depression in the obstetrical clinical setting (Beck & Gable, 2001; Bloch et al., 2000; Ferber et al., 2005; Fergerson et al., 2002; Huang & Mathers, 2006; Peindl, Wisner, & Hanusa, 2004; Wisner et. al, 2002), however, it has not been used in men.

Primary Study Dependent Variable.

Marital Satisfaction

Marital satisfaction has many synonyms and meanings. In this case, it will mean satisfaction, adjustment, quality, happiness or contentedness. General marital satisfaction or quality was assessed by the Locke-Wallace Short Marital Adjustment Test (LWSMAT), with a score of greater than 100 indicating greater adjustment. *The Locke-Wallace Short Marital Adjustment Test* (Locke & Wallace, 1959) consists of 15-items, has a score range of 2-158, and is easy and rapid to administer. It uses a Likert-scale format (unequally weighted by item). Likert-scale format is the preferred method for assessing affective responses (Roach, Frazier, & Bowden, 1981). The scale has been used extensively to measure marital quality over the last 30 years (Scanlan, 2005; Freeston & Plechaty, 1997; Hackel & Ruble, 1992; Roach et. al, 1981). It was chosen for this study as the outcome variable since the sample will come from the general population and without any known marital problems. Due to unequal weighting of the items, the authors' reliability coefficient, computed by the split-half technique and corrected by the Spearman-Brown formula, of 0.90 is commonly accepted. The validity has also been established multiple times (Locke & Wallace, 1959; Freeston & Plechaty, 1997).

Marital Satisfaction as determined by the Locke-Wallace Marital Adjustment Scale was treated in this study as a dichotomous categorical variable. Each individual partner score was evaluated against the standard cut point of 99. If the score was 99 or below, the individual was considered to be in the low category; if the individual was 100 or above, he/she was in the high category. The couple's score was derived by assessing the pair for consistency and level; if both individuals were in the high category, then the couple was coded as high, if both or either was in the low category, then the couple was coded as low.

Additional variables of interest.

A twelve item instrument was developed by this researcher to assess some commonly held notions about sexual activity in late pregnancy and the postpartum period. The content of the statements was based, in part, on the *Women's Health after Childbirth* questionnaire developed by Barrett and colleagues (1999) through a pilot study done in the United Kingdom, which investigated women's sexual health in the postnatal period. The statements were scripted in both the positive and negative direction. The statements followed the Likert format, with responses ranging from strongly disagree to strongly agree over five choices. Four statements were related to sexual intercourse in late pregnancy. Eight statements related to the postpartum period. The areas of interest were timing of resumption of intercourse, engaging in intercourse while having vaginal bleeding, intercourse while lactating, and priority of resuming a sexual relationship after childbirth. This section was called 'Attitudes and Feelings'.

Instrument development and pre-test

A unique survey instrument was compiled by this researcher after a detailed search of the available tools in the published literature. Several tools for each concept in the study were evaluated for appropriateness as well as availability. Each of the selected tools was reproduced in a specific section of the instrument in its entirety after permission was obtained from the author or copyright holder (Pyke, 2006, personal communication). The response options conformed to the Likert scale format in all sections, except the demographic and background characteristics sections.

The socio-demographic section was modeled after categories used by the National Center for Health Statistics (USDHHS, CDC, 2005); general health and home environment, obstetric, post-partum and infant information was modeled after the questionnaire developed by Barrett, et. al in 1999. The demographic section included

gender, race, ethnicity, socioeconomic status, education level, marital status and information regarding childbirth, household and general health status.

The survey instrument was pre-tested before the data collection began with a group of five postpartum couples who fit the inclusion criteria and were recruited from a childbirth preparation class whose instructor was known to the researcher. The pre-test session included an explanation of why the study was being done, instructions for completing the survey, need for confidentiality and finally, questions of the couples regarding: acceptability of the survey, ease of understanding, and length of time needed for completion. No one thought the survey instrument was intrusive, in poor taste or too long.

Changes to the tools were made based on needs of the current study. The expected intimacy section of the PAIR was modified to read as the intimacy level occurring before the most recent birth, so measuring past intimacy. The SIDI had minor changes to the wording in the arousal items to include male sexuality responses and was presented as a self -report instrument in this study, not a clinician administered tool. The Attitudes and Feeling section was created by this researcher as described above.

As this research involved questions and opinions of an intimate nature and the participants were asked to keep all answers confidential, a section was added at the end of the survey to help the participants decompress from all the sensitive material to which they had been recently exposed. This section included six statements which asked about recreational preferences and, most importantly, is chocolate or vanilla preferred.

Study Recruitment and Enrollment

Site Selection.

The sites for recruitment of patients were private obstetrics and gynecology practices in three different geographic areas and professional practice configurations: 1): suburban Mid-Atlantic Region of the United States, physicians and advanced

practice nurses, 2) southern coastal area, physicians only, and 3) western Pennsylvania suburban population, physician only.

Private obstetrics and gynecology offices were used to capture a sample of women more likely to be in long-term relationships and of comparable socio-economic status. These particular practice sites were chosen because the researcher had previously known and worked with the physicians, and the physicians were willing and able to support this research endeavor.

Sample Recruitment Strategy.

A two stage recruitment process was used. In the first stage, the obstetrics provider identified postpartum female patients who appeared to be study eligible; they converse in English and had been delivered of a full-term, ostensibly healthy baby. A flier/letter of introduction that described the study and the expectations of the participants and listed the telephone number and email address of the researcher was given to the identified woman during a routine postpartum visit or at the first annual gynecological visit after the birth of a baby. Women were asked to contact the researcher if they and their partner were interested in participating in the study. The flier was handed to the woman by the office staff. The recruitment protocol was explained to all office personnel by the researcher. The researcher was not involved in first stage recruitment. When the researcher was contacted by a member of the couple, a brief discussion regarding the study purpose and method ensued; inclusion and exclusion criteria were reviewed and the couple member was asked whether he or she thought the eligibility criteria were met. For those who continued to express an interest in the study, an appointment for an in-person interview and data collection opportunity between six and 24 weeks postpartum was made. The consent form was immediately mailed to the subject couple and the couple was asked to bring it to the scheduled meeting. In all cases, in-person meeting took place at the clinical office of the woman's obstetrical provider. At the scheduled

interview, the researcher had the opportunity to review the study needs with the couple, answer questions, obtain informed consent and administer the questionnaire.

Sample Inclusion/Exclusion Criteria.

A convenience sample of postpartum women, having had their 2nd or more baby, and their partners, was recruited. Inclusion criteria were: maternal ages 21-45, in relationship more than one year, heterosexual orientation, delivered of their second or more live, healthy child together, and willing and able to complete the data collection forms between the sixth and 24th week postpartum.

Exclusion criteria were: delivered of a non-living, preterm or otherwise handicapped infant, previous history of diagnosed major depression in either partner, or self-reported inability to read and write in English.

The recruitment strategy yielded calls from thirty interested couples, of whom 27 met criteria and chose to participate.

Role of the Researcher

The researcher designed this study in concert with the other members of the research team. Only the researcher participated in data collection, including subject contact, discussion and signing the informed consent document. All data were entered by this researcher, and analysis was performed with the team members.

Protection of Human Subjects

The research plan was approved by the Institutional Review Board of Drexel University in a full review. The study population was limited to healthy adult heterosexual couples, maternal age range 21-45, who had been in the relationship for longer than one year and delivered of a live child without major morbidity by vaginal or cesarean routes. Recruitment was made through private Obstetrics – Gynecology Offices, with contact made by the participant to the researcher. The survey instrument was administered in a face to face meeting where informed consent was obtained. The

consent itself included information regarding the purpose of the study, the procedure and duration of the study, the associated risks or discomforts, the possibility of unforeseen risks, the personal benefits, availability of alternative treatments or procedures, reasons for removal from this study, a voluntary participation clause, responsibility for cost, stipend/remunerations, treatment of injury, confidentiality of data, and any other considerations The survey was anonymous, coded only by couple identification.

Potential Risks

The potential risks in this study were psychological distress and marital discord. Psychological distress is a possible consequence of research on sexuality and intimacy issues. As this study dealt with intimacy and sexuality, minimizing these risks was a prime objective and included informing the couple about these potential risks before they actually started survey completion. The intrusion into one's personal life and the questioning of behaviors and belief may lead to unhappiness, embarrassment, shame or anger.

Marital discord is also a possibility if the partners share the questionnaire answers. The desires of each may not match, leading to anger, disappointment or unhappiness. The likelihood of anyone experiencing these emotional upsets was considered minimal. The seriousness of these upsets was expected to be based upon the individual couple's usual method of dealing with stress.

The participants were advised to contact their private physician in the event of distress and given a copy of the CES-D as well as a list of providers in their area who have experience in depression counseling and couple therapy.

A de-briefing session was conducted by the researcher once the couple members both returned their completed questionnaire packet. The participants were advised that the role of the researcher in this instance was one of academic researcher and not clinician. Some general questions related to research and the area of interest

were asked and answered. No survey specific questions were asked by the participants. The need for confidentiality of answers was reiterated.

Confidentiality of information was maintained by anonymous survey design and restriction of couple interaction during data collection. The surveys had no identifying information on them and were coded by couple, so a comparison was made between couple responses. This study was conducted in a onetime only data collection, had a low risk to a confidentiality breach and did not include any Phase I, II or III trials. Only the researcher had possession of the signed consent form and the survey instrument, which were stored in a locked file in the researcher's office.

Data Collection and Management

Self administered questionnaires were used and the couple was asked to complete the surveys privately, in separate areas. If the couple brought their children to the appointment, the procedure was to allow the couple the option to complete the survey one at a time. No couples took this option, choosing to complete the survey while the child or children were in their presence. The instruments were coded by site, and matched by partner, for example, *P1m/P1f*, for Pittsburgh, number 1, male and female surveys. This ensured anonymity, as well as being matched by partner relationship but not linked to the consent forms. There was no notation on the patient's medical record of having received the letter of introduction. Data were collected specifically for this study and done by paper and pencil. Each participant was given a survey packet, escorted to a private area, and separated from their partner. The participants were told to return the instruments to the envelope after the survey was completed and return to the common area with the packet. Participants were asked not to discuss the surveys with anyone else. At completion of the survey packet, each couple was given 30$ cash, 15$ each, as an honorarium. Data collection occurred between March and October, 2008.

Data Entry.

Data were entered and managed by the researcher. The questionnaire was a formatted data collection instrument with all numeric item responses. All forms were examined to check response completeness and accuracy at the time of collection. All forms were logged in after being checked for response error, containing only site, couple and gender number without identifying information. Data entry was double entry with verification. An SPSS system file was generated, in which all variables were named and labeled; and value labels, where appropriate were specified. Data cleaning was conducted on the SPSS system file and out of range data were identified and, as necessary, the raw questionnaire data were reviewed and the error corrected. Illogical response patterns were examined and apparent inconsistencies were reviewed against the raw data. All recoding of items so that the "positive response" always had the highest value was completed after the initial data entry had been completed. After data entry, verification, and appropriate item recoding, scale scores were calculated. A missing data field was denoted with the marker -25.00. As appropriate, a missing item value was replaced with the gender specific mean for that item. Due to the small sample size, the ranges of some item responses were truncated. Two data analyses files were created. One included the individual data for all 54 respondents. The other set was developed as a couple file with 27 records, each of which included all the male and female variables for the couple. Then, statistical analysis of the data was conducted using SPSS, Version 16.

Preliminary Data Analyses.

Frequency distributions were generated for all variables under consideration. The frequency distributions of continuous variables were examined to determine if the distribution was Gaussian. A variable that severely violated the characteristics of the Gaussian distribution initially was treated as an ordinal variable. Relevant univariate

analyses were run using the variable as ordinal level for one analysis and as continuous level for the other, when the results were the same, those in which the variable form was continuous were reported.

Internal consistency reliability for all scales was tested. Using SPSS 16, the items were entered into the alpha formula of the Reliability procedures, and an alpha value for male and female scale variables was generated.

The initial Cronbach's alpha for the total SIDI scale in this study for men was .65 and for women was .79. The published Cronbach's alpha is .90 (Clayton, et. al, 2006). The first alpha for the male SIDI version, in particular, was not considered adequate, so the data were examined further. On inspection of the SPSS output table that presents the item evaluations, it was recognized that when the SIDI item that tapped overall satisfaction with their current sexual experience was removed from the scale, the alpha level increased from .63 to .77. The decision was made to remove this item from the scale of both males and females. In addition to the improvement in the scale alpha level, the item on overall sexual relationship satisfaction as well as several other items did not seem to fit conceptually well with rest of the scale. A new variable was designed using only those items of interest, including: receptivity of sexual advance, initiation of sexual activity, frequency of desire for sexual activity, satisfaction with one's level of desire for sexual activity and level of distress related the desire for sexual activity. This new variable was named *LibidoLevel*. Cronbach's alpha was .65 for males and .79 for females. The possible score range was 0 to 21. This variable appears to measure the components most closely related to the definition put forth for libido, 'the urge for, interest in, or drive to seek out sexual objects or to engage in sexual activity.' The *LibidoLevel* scale does not include the overall satisfaction item, the affection (non sexual touching) item as well as items related to sexual thoughts, erotica, arousal frequency, arousal ease, arousal continuation, and orgasm. Overall satisfaction with the sexual

relationship does not appear to be connected to the other SIDI items. For males, the overall satisfaction item was totally unrelated to the rest of the scale. These associations were examined using contingency tables.

The two variables created from the SIDI were ones that tapped desire, receptivity and interest, labeled here as *LibidoLevel* and the other, based on the single item that provides an assessment of overall satisfaction with the sexual relationship, labeled as *Overall Satisfaction*.

The reliability of the PAIR was examined by dimensions. Each dimension has its own reliability coefficient. The published reliability of the PAIR exceeded .70 (Schaefer & Olson, 1981). The published Cronbach's alpha for the CES-D is .85 in the general population (Radloff, 1977). In this study, the Cronbach's alpha for the CES-D was .73 for men and .83 for women.

The Locke-Wallace Short Marital Adjustment Test published reliability represented a split half reliability (Spearman-Brown co-efficient) and was reported as .90. The Cronbach's alpha for this study was .64 for males and .75 for females. As the formula recommended for the Locke-Wallace Short Marital Adjustment Test reflects item weighting that were not fully explained in the published literature, only the Cronbach's alpha reliability was obtained for this scale. See Table 2 for the scale alpha levels observed in this study.

Table 2.

Reported and Calculated Reliability Statistics of Instruments

Scale	Gender	Reported α	Calculated α
Attitudes & Feelings	Male	N/A	.51
	Female	N/A	.51
SIDI	Male	N/A	.65
	Female	.90	.80
PAIR			
Emotional Dimension	Male	.75	.87
	Female	.75	.83
Social Dimension	Male	.71	.70
	Female	.71	.75
Sexual Dimension	Male	.77	.79
	Female	.77	.68
Intellectual Dimension	Male	.70	.75
	Female	.70	.83
Recreational Dimension	Male	.70	.70
	Female	.70	.76
Conventionality	Male	.80	.44
	Female	.60	
CESD	Male	.85	.73
	Female	.85	.84
LWSMAT	Male	.90 (Spearman-Brown)	.64
	Female	.90(Spearman-Brown)	.76

Analyses Pertinent to Specific Aims.

Univariate analyses were used to examine the relationships between the independent and dependent variable using both the individual and the couple as the unit of analysis. The frequency distributions of the continuous variables were examined and most distributions were found to be skewed. Most of the analyses were done using categorical versions of the variables, so the variable distributions were not a factor.

Couple variables were made for most of the major variables. This was done by taking the continuous scores of each individual and converting to a categorical variable by using the mean of that particular score as the cut point, resulting in a dichotomous variable coded as high or low. Then the couple variable was created by making the reference group the high score, or the score above the mean. If both partners were above the mean, the couple was considered as high and assigned a numeric value of "0", as this was the reference group. If both scored at the mean or below, the couple was considered as low, or problematic, and assigned a value of "1". For those couples who did not score the same, the discrepancy was considered problematic, and they were included in the low group. As the sample size was small, there were not enough participants in each group to have a separate category for couples whose individual scores on a variable were discrepant. In addition, a between couple discrepancy on a variable such as level of intimacy, was considered evidence of a potential couple problem.

For the PAIR intimacy variable univariate analyses were conducted using logistic regression in which the dichotomous version of the Locke-Wallace Short Marital Satisfaction scale was the dependent variable and each PAIR dimension was separately considered as an independent variable. These preliminary evaluations revealed that a statistically significant association with marital satisfaction was observed for the emotional intimacy dimension. As this was the area of intimacy of most interest, this

was the only PAIR dimension included in the remainder of the analyses. Formulation of couple level of emotional intimacy was calculated after the transformation of the continuous individual score into a categorical variable. The dichotomous variable *Intimacy* was created by taking the mean of the combined sample emotional score and making the high level above the mean and the low level at the mean or below. *IntimacyC* was then created by taking both partners dichotomous levels, and if both were high, the couple was considered high; but, if one or both were low, the couple was considered low.

Multivariate analyses were used to explore the relationships among the variables. Logistic regression was used because the dependent variable, marital satisfaction was treated as a dichotomous variable. An individual dichotomous variable was created, *MarSat*, based on the published cut point for the scale at 99. Above 99 is high and 99 or below is low. The variable *MarSatC* was created as the other couple variables, using both high individual scores as the reference group, 0, and both or either less than or equal to 99 as the low group, 1. Due to the small sample size it became apparent that evaluation of interaction would not be possible using logistic regression. Rather, 3-way contingency tables were generated and examined to explore the possibility of interaction in data.

Chapter 4: Results

Overview of the Study

This study explored the nature of the relationship between intimacy, libido, overall sexual satisfaction, depressive symptoms and marital satisfaction in the postpartum period. Correlation analyses were conducted to ascertain the univariate relationship between measures of intimacy, libido and marital satisfaction. Then logistic regression was applied to examine the independent associations of intimacy, libido, and sexual satisfaction on marital satisfaction. These analyses were employed to evaluate the stated research hypotheses:

H_1. Within individuals, high perceived intimacy will diminish the negative effects on perceived marital satisfaction due to reported low libido and low sexual satisfaction

H_2. High intimacy within couples will diminish the negative effects on the couple level of marital satisfaction associated with a discrepancy in the libidos and sexual satisfaction reported by each couple member.

H_3. Breastfeeding status, poor body image, high fatigue level will have independent negative effects on the libido and/or sexual satisfaction of the postpartum woman, but will be unrelated to the libido and/or sexual satisfaction of her partner.

H_4. A high depressive symptom level experienced by either partner will have a negative impact on the individual's and his/her partners current level of marital satisfaction.

Study recruitment procedures yielded 30 telephone inquiries regarding the study. Of these, 27 couples met study criteria and agreed to participate. The study data

collection instrument was successfully completed by these 27 couples. Results of the statistical analyses are presented in this chapter.

Subject Demographics

The total sample for this study consisted of 27 heterosexual couples who met inclusion criteria. Criteria were: having been together as a couple for more than one year, the woman's age was between 21 and 45 years, being delivered of their second or more healthy baby together and able and willing to complete the survey between six and 24 weeks postpartum.

Socio- Demographics.

The mean age of the women was 31.4 years (range 25-40) and the mean age of the men was 33.5 years (range 25-48). There were no statistically significant difference between the ages of the men and the women. Eighty-three per cent of the participants identified as white. Forty one percent of the sample reported education as 16-21 years. Sixty one percent of the sample was employed full time. Forty percent of the sample reported income level as greater than $100,000 per year.

Table 3.

Selected Sociodemographic and Background Variables by Gender

Characteristic	N	Females	Males	Statistical Test	*p* Value
Age in years (mean/sd)	27	31.3/5.0	33.5/6.0	t-Test	.81
Education in years (mean /sd)	27	15.75/2.21	14.01/1.89	t-Test	.70
Race	27			Chi sq	1.00
Caucasian		85.2%	85.2%		
AfricanAmerican		11.1%	11.1%		
Asian		3.7%	3.7%		
Employment	25			Chi sq	.47
Status FullTime		11%	22%		
PartTime		7%	2%		
Unemployed		7%	1%		

Description of the couples

All couples reported relationship length as greater than two years (range 2-18), with 91% being married only once; the remaining nine percent reported no marriages. Pertaining to the household, fifty five percent of the couples agreed that the household had returned to normal by the time of the survey and 72% reported having full time or part-time help at home. The majority of the couples (83%) reported that their baby was usually not fussy, or “an easy baby”, but 51% reported that their baby did not sleep

through the night. All couples reported having between two and four children, (age range of the children was one to nine years). Couples were at least seven weeks from delivery of the youngest child. All reported that the other children had adjusted to the presence of the newest baby.

The majority of participants (73% men and 67% women) reported their general health as excellent or very good. No one reported being in poor health. Each participant was asked about a personal history of depression. None of the men reported ever being diagnosed with depression, but four of the women had previously been diagnosed with depression. As the diagnosis of major depression was part of the exclusion criteria, this area was explored at the time of informed consent. None of the women reported a diagnosis of major depression, nor were they ever hospitalized for this diagnosis, and they were not currently taking any anti-depression medications. Twenty two per cent of mothers reported feeling extremely tired, while only four per cent of fathers reported that same feeling (Table 4).

Table 4.

General Health Characteristics of Participants

Self Rated health	Males (N)	Percent	Females (N)	Percent
Excellent	9	33.3%	8	29.6
Very Good	10	37.0%	10	37.0
Good	6	22.2%	9	33.3
Fair	1	3.7%	0	0
Fatigue				
A Little Tired	18	66.7%	14	51.9
Tired	8	29.6%	7	25.9
Extremely Tired	1	3.7%	6	22.2
History of Depression				
No	27	100.0%	23	85.2
Yes	0	0%	4	14.8

Women only information

The participating women were asked to provide details regarding their obstetrical history. All women reported at least two pregnancies, with twenty six percent reporting four or more. The majority of women (66.7%) received epidurals for the delivery of the

most recent child. Fifteen women (55%) reported a vaginal delivery, while twelve women had cesarean deliveries. When asked if they had stitches, ten women responded and all felt that they were healed by eight weeks postpartum. Eighty five percent of the women reported breastfeeding their babies at some time, with thirty seven per cent breastfeeding at the time of the study. Regarding satisfaction with appearance and weight since the birth, forty one per cent of women were not satisfied or were very unhappy with their appearance and fifty nine per cent were unhappy with their weight.

Attitudes and feelings

When asked about their attitudes, thoughts or feelings regarding sexual intercourse during pregnancy, eighty seven percent of the participants agreed or strongly agreed that it is okay and safe to engage in sexual intercourse at that time, and seventy eight percent of couples disagree or strongly disagree that having sex after the twenty-seventh week of pregnancy will hurt the baby. Moreover, sixty-six percent of the women reported feeling comfortable having sex after the twenty-seventh week, and fifty-five percent of the men agreed with them.

The survey also explored the attitudes, thoughts or feelings of the participants regarding sexual intercourse in the early postpartum period. While sixty percent of the men disagreed or were neutral about sex as messy or unpleasant while bleeding, seventy-four percent of the women felt that sex while bleeding is indeed messy or unpleasant. However, few of the participants thought that having sex while bleeding was dangerous. The timing of resumption of sexual intercourse was also explored. When questioned whether it is not necessary to wait six weeks after the birth to resume sexual intercourse, the majority of participants disagreed, with only eighteen percent of women and thirty-seven percent of men reporting that they thought having sexual intercourse before the six week mark is acceptable. In comparison, relative to the question about waiting until the woman has her first menstrual cycle after the birth to resume sexual

intercourse, the majority of women (70%) reported that this is unnecessary and sexual intercourse may begin before the first menses. Only forty-four percent of men thought that this was alright. The question related to sexual intercourse and healing after the birth was answered similarly for both men and women, with seventy-eight percent of the participants reporting that having sex too soon will make healing more difficult. Since breastfeeding is the recommended method for feeding infants (Pillitteri, 2007) two items in this section examined attitudes or feelings about breastfeeding and sexual intercourse. It was found that eighty-five percent of the women had breastfed the baby at some time and thirty-seven percent were breastfeeding at the time of the survey. A small number of participants felt that sexual intercourse while breastfeeding was messy and unpleasant, while eighty-five percent of the men and seventy percent of the women did not think that way. No one thought that sexual intercourse while breastfeeding would affect the quality of the breast milk.

Finally, the majority of the participants disagreed with the statement that resuming an active sex life after the birth of this last child was a high priority. Sixty-seven percent of the women and sixty percent of the men disagreed with that statement.

Desensitization data

As this research involved questions and opinions of an intimate nature and the participants were asked to keep all answers confidential, a section was added at the end of the survey to help the participants decompress from all the sensitive material to which they had been recently exposed. This section included six statements which asked about recreational preferences and, most importantly, is chocolate or vanilla preferred. Our sample does not work-out; ride a bike or hike, as a rule. The majority of our sample does not read for pleasure, but does cook for pleasure. Finally, in this sample, eighty-two percent of the women prefer chocolate while the men were split at fifty-five percent for chocolate and forty-five percent for vanilla.

Univariate Associations

Associations between the main independent and dependent variables and gender were evaluated. Gender was found to be a associated only with libido. On average, men seemed to have a higher libido level than women in this study. The CES-D is interesting in that there is absolutely no difference between the groups [2- tailed t-test p=1.00] when compared by gender. The results can be found in Table 5.

Table 5.

Associations between Major Study Variables and Gender

	Sex	N	Mean	Standard Deviation	T-Test *p* Value
Libido	Male	27	16.26	3.81	.000
	Female	27	11.44	5.42	
Sexual Satisfaction	Male	27	2.63	1.55	.35
	Female	27	2.59	1.34	
Emotional Intimacy	Male	27	63.70	20.42	.63
	Female	27	67.26	20.49	
CES-D	Male	27	8.59	7.81	1.00
	Female	27	8.59	9.08	
Marital Satisfaction	Male	27	107.48	23.20	.25
	Female	27	110.56	30.40	

In order to better describe the participants, associations between some characteristics in addition to gender and the major study variables were examined. Relationships between age, education level and relationship length treated as continuous variables and the dichotomous versions of the major study variables, (e.g.

libido, sexual satisfaction, marital satisfaction, etc) were examine. Mean differences were evaluated using the 2 sample Student T-test.

Age was not associated with overall sexual satisfaction or intimacy level. While, the average age of individuals in the low libido group was higher than in the high libido group and individuals with a high CES-D were, on average, older, the between group differences were not statistically significant. Likewise, on average, individuals with high marital satisfaction were older than those with low marital satisfaction. The age differences were also not statistically significant.

There were no statistically significant associations between education level and overall sexual satisfaction, libido or depression symptom level. Education level was statistically significant in terms of emotional intimacy (p = .02). On average, individuals with higher emotional intimacy had higher levels of education. Women with higher marital satisfaction, had higher education levels (p = .02).

Individuals with low overall sexual satisfaction, reported, on average, longer relationship length. No associations between relationship length and libido or depressive symptoms were observed. However, relationship length had a statistically significant relationship with emotional intimacy; those with higher intimacy levels reported longer relationship length, [2- tailed t-test, p = .04]. Persons with high marital satisfaction also reported, on average, a longer, but not statistically significant, relationship length.

Looking at the amount of time since the birth of the baby, it appears that time had no effect on the overall sexual satisfaction, libido level, intimacy level or depression risk. There was a slight trend that individuals with decreased marital satisfaction indicated a longer time from delivery, however, the p value was >.05.

Contingency table analyses were used to examine the relationship among the major study variable and some of the minor independent variables. The statistical significance of the relationship was evaluated using the Fisher's Exact Test.

Most of the participants in the study were married one time. There were no statistically significant relationships between number of marriages and emotional intimacy, overall satisfaction with the sexual relationship, libido, depressive symptoms or marital satisfaction.

How tired the participants were was examined using a chi square statistic. While the group who chose the *more tired* option seemed to have lower emotional intimacy and more depressive symptoms, the relationships were not statistically significant. Statistically significant associations between fatigue, or how tired the participant rated themselves, and libido or overall satisfaction with the sexual relationship were not observed; however, no was a statistically significant association was observed between being tired and marital satisfaction. *Help at home* had no relationship with the major study variables.

Associations between breastfeeding, mode of delivery and the major study variables were examined. There was no difference between those who were currently breastfeeding their infant and those who were not currently breastfeeding in terms of libido and overall satisfaction with the sexual relationship. Seventy-three percent of couples no longer breastfeeding reported low emotional intimacy while 42% of those currently breastfeeding reported low emotional intimacy. Likewise, relationships between breastfeeding and depression risk or marital satisfaction were not seen.

Based on contingency table analyses, mode of delivery showed no statistically significant associations with any of the main study variables.

Association among the Major Study Variables

To examine the associations among the major study variables, correlation matrices were generated for females and males separately. The correlation matrices are presented in Tables 6 (females) and 7 (males). Reviewing the correlations between the independent variables, it was evident that the correlations were not sufficiently high (e.g. they were all < .8) to indicate that multicollinearity existed in the data.

For females, depressive symptoms had an overall negative correlation with all other variables. Overall satisfaction with the sexual relationship had a low positive correlation with libido and a moderate correlation with emotional intimacy and marital satisfaction. There was no or a very low correlation of libido with emotional intimacy and with marital satisfaction. Emotional intimacy had a high positive correlation with marital satisfaction.

Table 6.

Associations among Major Study Variables Matrix – Female Participants

		CES-D	Overall Satisfaction	Libido	EmoScore	Marital Satisfaction
CES-D	Pearson Correlation	1.000	-.30	-.32	-.51	-.64
	Sig. (2-tailed)		.13	.11	.007	.000
Overall Satisfaction	Pearson Correlation		1.00	.41	.41	.58
	Sig. (2-tailed)			.03	.03	.001
Libido Level	Pearson Correlation			1.00	.13	.27
	Sig. (2-tailed)				.51	.18
Intimacy	Pearson Correlation				1.00	.74
	Sig. (2-tailed)					.000
Marital Satisfaction	Pearson Correlation					1.00
	Sig. (2-tailed)					

The male matrix was slightly different. Depressive symptoms were not negatively correlated with all other variables. Both libido and emotional intimacy had moderately negative correlations with depressive symptoms. Libido had a low positive correlation to emotional intimacy and marital satisfaction. Emotional intimacy has a high correlation to marital satisfaction.

Table 7.

Associations among Major Study Variables Matrix – Male Participants

		CES-D	Overall Satisfaction	Libido	EmoScore	Marital Satisfaction
CES-D	Pearson Correlation	1.00	.14	-.56	-.60	-.47
	Sig. (2-tailed)		.50	.003	.001	.01
Overall Satisfaction	Pearson Correlation		1.00	-.31	.33	.28
	Sig. (2-tailed)			.12	.096	.16
Libido Level	Pearson Correlation			1.00	.46	.41
	Sig. (2-tailed)				.02	.04
Intimacy	Pearson Correlation				1.00	.78
	Sig. (2-tailed)					.000
Marital Satisfaction	Pearson Correlation					1.00
	Sig. (2-tailed)					

Associations between depressive symptoms and the individual and couple level variables were considered. Student t - tests were used to compare the means of the major study variables by the depression risk group. Participants in the *no risk* for depression group (CES-D score < 16) had, on average, higher libido scores (*M*=14.56, *SE*=.76) than those in the *at risk* group (*M*=9.75, *SE*=1.25). The difference was statistically significant at $t(52) = 2.51$, $p = .015$. Individuals in the *no risk* group, had on average, higher intimacy scores (*M* = 70.08, *SE* = 2.57), than those in the *at risk* for depression group (*M* = 39.00, *SE* = 5.33). This difference was statistically significant at $t(52) = 4.72$, $p = .000$. As well, people in the *no risk* for depression had, on average, higher scores in marital satisfaction (*M* = 114.56, *SE* = 3.13) than those people in the *at risk* group (*M* = 77.12, *SE* = 12.10). This difference is statistically significant at $t(52) = 4.16$, $p = .000$. Depression risk group had no statistically significant relationship with overall satisfaction with the sexual relationship.

Table 8.

Associations between depressive symptoms and the main study variables where 8 persons with a CES – D score ≥ 16 constituted the high depression risk group and 46 persons with a CES – D score < 16 comprise the low depression risk group.

Variable	Depression Risk Group	Mean	SE	*t(df) = t(52)*	*p* value (2-sided)
Overall Satisfaction	High	2.65	1.21	.50	>.05
	Low	2.37	.53		
Libido	High	14.56	.76	2.51	.015
	Low	9.75	1.25		
Intimacy	High	70.08	2.57	4.72	.000
	Low	39.00	5.33		
Marital Satisfaction	High	114.56	3.13	4.16	.000
	Low	77.12	12.10		

In order to examine the importance of depressive symptoms for the other major study variables including marital satisfaction, logistic regression was used to model risk of a low score on these variables. The depression variable was entered into the equation as a dichotomous variable with the low symptom level assigned as the

reference group. Depression symptom level was not a statistically significant predictor of overall satisfaction with the sexual relationship. It was, however, a statistically significant predictor for libido level. Individuals in the high risk for depression group were .84 (95% CI .72 to .98) times more likely of being in the low libido group (p =.03). In the model predicting depression risk, emotional intimacy was statistically significant (p =.002), and an odds ratio of .91 (95% CI .85 to .96) indicating that as the emotional intimacy score increased, the likelihood of being in the depression risk group decreased. Finally, in the model predicting depression risk with marital satisfaction, marital satisfaction was statistically significant at p =.003, odds ratio =.95 (95% CI .92 to .98). The likelihood of being in the depression risk group was decreased as the marital satisfaction score increased by one unit. When gender was added to the model, the odds ratio and p value for marital satisfaction remained the same, indicating that the depression risk is associated to marital satisfaction regardless of gender; gender was not statistically significant. The results of these logistic regression analyses are summarized in Table 9.

Table 9.

Logistic regression analysis showing univariate associations between selected study variables as independent variables and Depression Risk as dependent variable

Variables	β	Wald/Chi square	Odds Ratio	95% CI for Odds Ratio	
				Lower	Upper
Overall Satisfaction	-.13	.26/.61	.88	.52	1.47
Libido Level	-.18	5.01/.03	.84	.72	.98
Intimacy	-.097	9.48/.002	.91	.85	.96
Marital Satisfaction	-.05	9.04/.003	.95	.92	.98

Contingency tables were generated for both individual and couple level variables and examined to determine the relationship between the major independent study variables and the dependent or outcome variable, marital satisfaction. The individual level results follow. Eighty-eight per cent of individuals with high overall satisfaction with the sexual relationship were in the high marital satisfaction group, while 41% of those with low overall satisfaction with the sexual relationship were in the high marital satisfaction group. The Fisher's Exact test was statistically significant at .001. Ninety-four per cent of individuals with high intimacy were in the high marital satisfaction group, while 35% of individuals with low intimacy were in the high marital satisfaction group. This finding was statistically significant, with Fisher's Exact test at .000. Seventy-four

per cent of individuals with high libido level were in the high marital satisfaction group and 63% of individuals with low libido level were in the high marital satisfaction group. This finding was not statistically significant (p =.56). There was no statistically significant difference between the *no risk* for depression group and the *at risk* for depression group when examining the relationship between depression and marital satisfaction in this study. The couple level data are presented Table 10.

Table 10.

Crosstabulations: Dichotomous couple level study independent variables by couple Marital Satisfaction

Independent Couple Variable		% in High Couple Marital Satisfaction	Fisher's Exact Test (2-sided)
Overall Satisfaction	High	100%	.001
	Low	33%	
Libido Level	High	83%	.18
	Low	48%	
Intimacy	High	91%	.005
	Low	31%	
Male Depression Risk	High	70%	.02
	Low	14%	
Female Depression Risk	High	63%	.08
	Low	0%	

A logistic regression analysis was performed with the dichotomous individual level marital satisfaction as the outcome and the four continuous variables of interest as the predictors: overall satisfaction with the sexual relationship, libido level, emotional intimacy level, and depressive symptoms. Data on 27 women and 27 men, for a total of 54 cases, were available for analysis. A test of the full model with all four predictors against a constant–only model indicated that the odds ratios for only 2 predictor variables were statistically significant. These variables were: emotional intimacy and overall satisfaction with sexual relationship. For both independent variables the 95% confidence intervals for the odds ratios did not include 1. In each case, as the value of the independent variable increased to become more positive, the likelihood of being in the low marital satisfaction group decreased. In other words, higher emotional intimacy and higher overall sexual satisfaction protected the individual from being in the low level of marital satisfaction group. Table 11 shows the regression coefficients, odds ratios, and 95% confidence intervals for each of the two predictors.

Table 11.

Adjusted odds ratio for low marital satisfaction with overall satisfaction with the sexual relationship and emotional intimacy included in the analysis as continuous (N=54)

Variables	β	Odds Ratio	95% CI for Odds Ratio	
			Lower	Upper
Overall Satisfaction	-.92	.40	.20	.80
Intimacy	-.10	.90	.85	.96

For the final data analyses, three way contingency tables were generated to examine relationships among the selected study variables and, in particular, to evaluate the presence of interaction in the data. The analyses were run on both the individual level and the couple level variables.

Table 12.

3 – way contingency tables of individual level data showing the association of overall satisfaction with the sexual relationship and marital satisfaction, while holding level of emotional intimacy constant

Intimacy	Overall Satisfaction	Marital Satisfaction High	Marital Satisfaction Low	Total	Fisher's Exact (2-sided) Test
High	High	100%	0%	100%	.097
	Low	80%	20%	100%	
Low	High	64%	36%	100%	.009
	Low	8%	92%	100%	

Table 13.

3 – way contingency tables of couple level data showing the association of overall satisfaction with the sexual relationship and marital satisfaction, while holding level of emotional intimacy constant

Intimacy	Overall Satisfaction	Marital Satisfaction High	Marital Satisfaction Low	Total	Fisher's Exact (2-sided) Test
High	High	100%	0%	100%	.545
	Low	83%	17%	100%	
Low	High	64%	36%	100%	.003
	Low	8%	92%	100%	

Examining the effects of sexual satisfaction on marital satisfaction for each of the levels of emotional intimacy, we found that when emotional intimacy level was high and overall satisfaction with the sexual relationship was high, then marital satisfaction was high 100% of the time, and even if overall satisfaction was low, in the presence of high emotional intimacy level, marital satisfaction remained high for 80% of the participants. As hypothesized, this relationship was not statistically significant. In contrast, where the emotional intimacy was low, but the overall satisfaction with the sexual relationship was high, the participant was still more likely to be in the high marital satisfaction group (64%). However, when the emotional intimacy level was low and the overall satisfaction with the sexual relationship was low, then the marital satisfaction is low for 92% of the

individuals. This relationship was statistically significant p =.009. These results held true for the couple data also. They indicate that high emotional intimacy buffered the negative impact on marital satisfaction of low overall satisfaction with the sexual relationship.

Chapter 5: Summary and Implications for Future Research

Overview of Study

This study was designed to explore issues surrounding the intimate and sexual relationship of postpartum couples and the impact of these relationships on their marital satisfaction. Twenty-seven postpartum couples participated in the study, and completed a structured questionnaire that tapped intimacy, libido, depressive symptoms and marital satisfaction. The main finding in this study supports the *a priori* hypothesis: High intimacy level was positively correlated with marital satisfaction, even in the presence of low libido and elevated depressive symptoms. Emotional intimacy scores were statistically significant in all analyses, regardless of other variables considered simultaneously and the statistical test used.

This study examined attitudes and feelings about sex in late pregnancy and in the postpartum period. Most participants felt that is was alright to continue an active sex life in late pregnancy. Men and women disagreed on the messiness of engaging in intercourse while bleeding, with the women thinking that while it was not dangerous, it was not fun either. Mostly everyone thought it was important to wait until after the six week check-up to resume intercourse, however. The vast majority had breastfed the newest baby for some time and few participants thought that sex while breastfeeding was a problem. However, in regards to considering their return to an active sex life after the birth a high priority, only about 40% of the participants thought that this was an important goal.

Gender seems only to matter in terms of libido level, with men having a higher libido than women in this study. Individuals with high marital satisfaction are older than less satisfied study participants. In contrast, those with high depressive symptoms and lower libido are, on average, older than their counterparts. The study also showed that the

average education level was higher for those participants with higher emotional intimacy and, among women, higher marital satisfaction level. Longer relationship length was seen in the group who reported higher levels of marital satisfaction. Moreover, individuals, especially women, who reported being “more tired” were more likely to report low marital satisfaction than those who denied such fatigue levels. Neither mode of delivery nor breastfeeding at the time of the study had an association with libido, intimacy or marital satisfaction.

The association matrices for males and females were very comparable, but for males those associations between depressive symptoms and libido, emotional intimacy and marital satisfaction are statistically significant and only the associations between depressive symptoms and emotional intimacy and marital satisfaction are statistically significant for females. The associations between overall sexual satisfaction and libido, emotional intimacy and marital satisfaction were statistically significant for women, but not for men. Finally, emotional intimacy had strong statistically significant associations with marital satisfaction for both males and females. Associations between depressive symptoms, considered as a dichotomous variable, with the low risk for depression group compared to the high risk for depression group were evaluated. Individuals with a low risk for depression were much more likely to be in the high libido group, the high intimacy group and the high marital satisfaction group than in the low groups for these variables.

Hypothesis Testing

The study has demonstrated that emotional intimacy matters, and, high levels of intimacy buffer the negative impact on marital satisfaction of low overall sexual satisfaction. In testing the hypotheses, the small study sample size precluded inclusion of interaction terms in the logistic equations. In order to explore the hypotheses, three way contingency table analyses were examined.

The main hypothesis, ‘Within individuals, high perceived intimacy will diminish the negative effects on perceived marital satisfaction due to reported low libido’ was supported. Low intimacy level predicted low marital satisfaction, while libido level did not predict marital satisfaction in this study. Ninety-one per cent of couples fell into the high marital satisfaction group if they are also in the high emotional intimacy group, regardless of their overall satisfaction with the sexual relationship or the libido level. Due to the small sample size, the data trended to show that gender modified the effect of libido and that overlap of libido scores occurred, with the high female scores being comparable to the low male scores.

The second hypothesis, ‘High intimacy within couples will diminish the negative effects on the couple level of marital satisfaction associated with a discrepancy in the libido scores reported by each couple member' is partially supported. When only libido level was examined, the results showed that if both partners had high libido levels, then 83% of the couples had high marital satisfaction levels, but, if both members had low or discrepant libido levels, only 48% of the couples had high marital satisfaction levels. This relationship was not statistically significant. When overall satisfaction with the sexual relationship was examined in relation to marital satisfaction, the results were different. Couples who both reported high overall satisfaction with sexual relationship had high marital satisfaction 100% of the time, but, those who reported low or discrepant overall satisfaction with sexual relationship had high marital satisfaction only 33% of the time. This relationship is statistically significant (p = .001). Clearly, the overall satisfaction construct differs from libido for these couples. Within couple discrepancy of libido level did not seem to impact their marital satisfaction in this study, however, the evidence shows that overall satisfaction with the sexual relationship discrepancy in couples does matter, leading to lower level marital satisfaction. Finally, when couple emotional intimacy was examined with couple marital satisfaction, we saw a similar

association as that of overall satisfaction with the sexual relationship and marital satisfaction. Ninety-one per cent of those couples who both reported high emotional intimacy levels also reported high marital satisfaction, however, if the couple reported low or discrepant emotional intimacy levels, only 31% reported high marital satisfaction levels. This relationship is statistically significant with a *p* value of .005.

When emotional intimacy was added to a 3 – way analysis, we see that for high intimacy couples, 100% of couples with high overall satisfaction had high marital satisfaction; even in those couples who had low or inconsistent overall satisfaction, marital satisfaction remains high for 83%. However, if the emotional intimacy level was low or inconsistent, the percent of couples with low or inconsistent overall satisfaction with the sexual relationship in the high marital satisfaction group was just 8%. Thus, the second hypothesis, which targeted the couple level relationships, was supported to the extent that high intimacy in couples was statistically significant and protective of the couple's marital satisfaction level where overall satisfaction with the sexual relationship was low. In terms of libido, a trend in the data was observed where couples with high emotional intimacy reported high marital satisfaction irrespective of their libido statuses while individuals with low emotional intimacy levels were more likely to report poor marital satisfaction especially if their libido level was low or discrepant.

Hypothesis 3, 'Breastfeeding status, poor body image, high fatigue level will have independent negative effects on the libido of the postpartum woman, but will be unrelated to the libido of her partner' was not supported. Among women who were breastfeeding at the time of the study 75% had low libido levels, but only 47% of the men whose partners were breastfeeding were in the low libido group. Forty eight percent of women reported high levels of fatigue, and 77% of those women were in the low libido group, compared to 33% of men who reported high fatigue level, with 44% of those men in the low libido group. These results were not statistically significant. In contrast, the

women's reports of their appearance satisfaction and weight satisfaction were strongly correlated to each other, and both were negatively correlated with the libido of both the man and the woman. In fact, the negative correlation between man's libido level and the female's satisfaction with appearance was stronger than that observed among the women.

The final hypothesis, 'A high depressive symptom level experienced by either partner will have a negative impact on the individual's and his/her partner's current level of marital satisfaction' is supported. In a 3 – way contingency table with depression risk held constant and marital satisfaction as the outcome variable, those with *no risk* for depression and high overall satisfaction with the sexual relationship reported high marital satisfaction 93% of the time while their depression-free counterparts with low overall satisfaction with the sexual relationship reported high marital satisfaction 47% of the time. This association was statistically significant (p = .001). However, for individuals *at risk* for depression, those in the high overall satisfaction with the sexual relationship group reported high marital satisfaction 60% of the time. In contrast, none of those with low overall satisfaction with the sexual relationship reported high marital satisfaction. This suggests that higher depression symptom levels may lead to decreased marital satisfaction irrespective of level of emotional intimacy. When the individual lacked the protection of a high emotional intimacy level, high depression risk become a predictor of low marital satisfaction. Depression symptoms also predicted low intimacy (p =.017) (OR 1.11, 95% CI 1.02 to 1.22). However, when depression and emotional intimacy were both evaluated as predictors of marital satisfaction, the predictive value of depression was no longer statistically significant; leading to the conclusion that depression had an indirect effect on marital satisfaction through emotional intimacy.

The postpartum sexuality literature documented that sexual intercourse has generally resumed by four months (Barrett et al., 1999; van Brummen, Bruinse, van de

Pol, Heintz, & van der Vaart, 2006; Byrd, Hyde, DeLamater, & Plant, 1998; Connolly et al.; Lumley, 1978; Signorello, et al.). This finding differs from that observed in the present study. Participants resumed sexual intercourse earlier than those in previous studies with 76% of participants reported resuming sexual intercourse by two months postpartum. Sexual satisfaction is not related to mode of delivery as found in the literature (van Brummen, et al.), and supported in this study. Findings in the literature (Ahlborg et al., 2005; DeJudicibus & McCabe, 2002; Dixon et al., 2000), report a relationship between libido and intimacy in the postpartum couple. This study found no association between libido and marital satisfaction for women but a statistically significant association for males (r= .46, p =.02). In contrast there is no association between sexual satisfaction and emotional intimacy for males but there is one for females (r=.41, p =.03). As for depression, this study is concordant with the published studies that observed that depressive symptoms may interfere with a return to intimacy, both sexual and emotional (Carroll et al., 2005).

Like the original SIDI research (Clayton, et al., 2006), this study's participants were in stable monogamous, heterosexual relationships of more than one year. The *Locke Wallace Short Marital Adjustment Test* (LWSMAT) (Locke & Wallace, 1959) was used in the psychometric testing and validation study of the SIDI, and those 2 instruments were not highly correlated in that study, showing that they measure different constructs. Pearson product coefficients were used to assess divergent validity by comparing responses on the SIDI with the LWSMAT scores. The lack of relationship between the SIDI and the LWSMAT reported in the study by Clayton et al., suggests a distinction between problems of a sexual nature and relationship problems of a general nature. The present study, however, has taken the original 13 item SIDI scale and divided it into two separate subscales; the libido level and the overall satisfaction with the sexual relationship. Viewed from this perspective, this study does not confirm the

presence of a low correlation between the SIDI and the LWSMAT. The correlation between overall satisfaction with the sexual relationship and LWSMAT for females was moderate (.58) with *p* =.001. Libido for females was unrelated to marital satisfaction. For males, the opposite was observed, libido was related to marital satisfaction (r=.41, *p* =.04) but not to overall sexual satisfaction.

The Sexual Interest and Desire Inventory has not been used in a male sample before this study. A small validation step was preformed and since the instrument appeared to be appropriate, it was used in this study. The data had not been completely evaluated for the psychometric properties of the male participants alone, but in the reliability evaluation of the male pilot group, the original 13 item alpha score was .63, and increased to .77 when the single item on overall satisfaction with the sexual relationship was removed. The alpha reliability coefficient for the 5 – item libido scale used in this study was .65 for the men and .80 for the women. It is this author's intention to further evaluate these data and report the findings in a separate document.

It may be that women equate overall satisfaction with the sexual relationship with some form of happiness or general well-being (Rosen & Bachman, 2008) and that general feeling of well-being is what they consider as marital satisfaction. The finding that libido is unrelated to marital satisfaction supports the study hypothesis that intimacy is the driving force for marital satisfaction for women, not libido, at least in the postpartum period. The model used as the basis for the study starts with an intimacy need and moves through sexual stimuli, arousal and desire, ending with an enhanced intimacy level. As the association between emotional intimacy and marital satisfaction is strong and statistically significant for women, it may be that women in this study consider overall satisfaction with the sexual relationship and marital satisfaction to be equivalent. More research is needed in this area to clarify the issue. In recent literature, age and

level of education appear to have a negative effect on sexual satisfaction (Jose & Alfons, 2007; Gold, 2006). These findings were not confirmed in the present study.

In a study on marital intimacy levels by O'Brien & Peyton (2002), wives showed slightly lower levels of intimacy than the husbands. This study does not confirm this finding, as there were no statistically significant differences between the men and the women. The present study showed longer on average relationship length among those with high marital satisfaction compared to individuals with low marital satisfaction. This is contrary to the published literature (O'Brien & Peyton). Among people with low marital satisfaction, our study does show a longer time since the delivery on average $t(25)=-2.88$, $p=.01$. Sexual satisfaction and marital satisfaction are strongly related in women (Hurlbert & Apt, 1994; McCabe, 1999). The present study does support this finding that overall satisfaction with the sexual relationship was one of two variables retained in the regression model to predict marital satisfaction.

All dimensions of the PAIR were included in the preliminary analysis for the present research, however, only the emotional intimacy dimension was used in the final analysis as this was the dimension which seemed to be most closely related to the constructs under study. Heller & Wood (1998) used a subjective level of couple intimacy (PAIR) in their study; by combining the average of the husband and wife's subjective levels of intimacy across domains and dividing by the number of domains. Heller & Wood report significant gender differences in level of intimacy, with women reporting high levels than men. In our study, though the mean of the intimacy score was higher for women, there was no statistical difference between the genders.

There were only three females (11%) in this study who scored high enough on the depressive symptoms scale to be considered at risk for depression, this is consistent with the published literature where between 5% and 25% of women are observed to be affected by depression in the postpartum period (Huang, Wong, Ronzio, & Yu, 2007).

The LWSMAT has been used many times in the general population, regardless of legal marital status, and was used in the validation study of the PAIR (Schaefer & Olson, 1981), where a positive association between the LWSMAT and the PAIR were observed. This present study also used the LWSMAT with the PAIR and found them to be positively correlated. According to Hackel & Rubel (1992) postpartum women and their partners with less sexual intimacy appear less satisfied with the marital relationship. The present study confirmed this finding.

Some of the differences found to exist between the published studies and the present one may be attributed to the timing of the study, which is the postpartum period, or the exclusive use of couples with more than one child together. Previous postpartum research studies rarely included couples with multiple children, rather, the research addressed primiparas. Another issue that may have resulted in differences between the present study and the previously published works was the inclusion of men. A unique feature of this study was the high depression risk observed in the men in the postpartum period (26%). Few studies have obtained depressive symptom data for fathers, and this finding suggests an area for future research.

Study Limitations

Due to the time constraints of this study, only a small couple sample was recruited. This resulted in restrictions on the complexity of the study analyses and low power for all the statistical analyses regardless of complexity. Of particular importance the small sample size precluded thorough evaluation of multiple confounders and the presence of interaction in the data. Bias was recognized as the sample was self-selected and may be of a higher functional capacity than those who chose not to participate. The findings may only be generalized to this very specific couple type, that is, couples in long term relationships, with more than one child, who are more likely to be white, work full time and have an income level about $50,000 per year.

Conclusions

So, what does it all mean? According to the model on which the study was based, the alternative model of female sexual response cycle (Basson, 2001), women are interested in seeking intimacy, a satisfying emotional and physical experience and sexually specific and intimate stimulus necessary for an individual woman to be satisfied. For postpartum women, some intimacy needs, as well as physical needs like touching, are fulfilled by the baby. But, since the woman in a committed relationship wants to enjoy enhanced intimacy with her partner, she will seek out sexual stimuli that will lead, eventually, to that state of enhanced intimacy. However, women with new babies are often at odds with themselves. This study has shown that women are more tired, unhappy with their appearance and weight, and have, on average, lower libidos than their partners. This often leads to the distress seen in the clinical situation over her perceived lack of libido. This research was designed from a clinical perspective; the perceived lack of libido is a common clinical problem among postpartum women. The discrepancy between the importance of overall satisfaction with the sexual relationship and the libido level, which was evident in this study, is very interesting. The male and female participants did not view the two constructs as being the same. It is possible that this is a postpartum phenomenon, are women unhappy with their lack of sexual activity or sexual desire, that is, their libido, but not unhappy with their sexual relationship or their marital relationship? This study does not answer all these questions, but does lead the way to a very interesting research line.

For men, the finding that libido is related to marital satisfaction is a commonly held tenet and was not surprising. However, this study also showed that sexual satisfaction was not related to marital satisfaction. It is possible that men have a more linear approach to these issues than women, just as Masters and Johnson described in 1966. Postpartum research on fathers has been very sparse in the literature and it may

be that this is the time to begin to explore in depth men's attitudes and feelings in the postpartum period.

We have found that emotional intimacy is very important to the marital satisfaction of both men and women, and that depressive symptoms are related to marital satisfaction indirectly through their effect on a person's emotional intimacy level, regardless of gender. Overall satisfaction with the sexual relationship is related to emotional intimacy for women, not men; and libido is related to emotional intimacy in men, but not women. So, it seems that in this study, all roads lead to marital satisfaction through emotional intimacy.

The Importance of the Knowledge

The subject of postpartum relationship intimacy and distress affects about 8 million persons per year in some way. The birth rate in the United States is currently about 4 million per year, so for both parents, there can be some issues regarding relationships in the first postpartum year. If this study can produce useful information that allows development of educational tools, interventions or just an increased awareness of postpartum relationship issues, the public may be well served through a decrease in distress around the postpartum period. As the risks to individuals in this study are minimal, all information gained will be worthwhile and reasonable in relation to the opportunity to benefit more than 8 million persons in the United States per year.

The results of this small study do support the hypothesis that a relationship which has an intimate foundation can weather the storm of the postpartum period.

Implications for Nursing Practice

Nurses are in a position to be an invaluable resource to postpartum women and their families. Nurses, by their education and training, should be well informed regarding the determinants of relationship factors. Unfortunately, a recent review by this author of eight national undergraduate nursing programs failed to show inclusion of formal

sexuality training in those programs. Graduate nursing programs include sexuality content as elective courses or minimally integrated in clinical courses. Thus, nurses may be unprepared to address these relationship issues.

The nurse in the hospital has the opportunity to teach new parents about many aspects of childcare as well as relationship issues. The teaching function of nursing is well established and is central to providing optimal care (Jones & Collins, 1995). However, in a 2004 study of new fathers, the fathers reported feeling excluded by the nurses during their partners' postpartum stay, and they indicated a desire for conditions that support paternal involvement (de Montigny & Lacharite). "Nurses can and should grasp every opportunity to support fathers and mothers" (de Montigny & Lacharite, p. 336) in this time of transition.

Advanced practice nurses are in a unique situation to develop a therapeutic relationship with patients through clinical expertise and nursing presence (Anderson, 2007). Nurses, through their use of "presence", may offer the first opportunity for the patient to discuss intimate relationship issues.

Since the nature of this study involves intimate relationships, the results of this work will be an important source of information to nurses. The results can provide insight into expectations of the fathers, how often a discrepancy exists in libido and intimacy levels, and if distress in relationships is related to those discrepancies. The data suggests the female low libido is a risk factor for men having low marital satisfaction. This is a very important point to consider when working with female patients. The information gained through this work will allow development of nursing interventions and education for the perinatal period.

Recommendations for Future Study

Discrepancy in libido levels should be evaluated in terms of gender; this discrepancy did not show a statistically significant difference in this study, but that could

be a function of the small study size. There is a great need for research on men in postpartum relationships, especially concerning the impact and occurrence of depressive symptoms. This study had five male participants who scored at risk for depression. Could it be postpartum depression or were those men depressed before? They are half of the equation in a postpartum household. Longitudinal data on young childbearing families are needed to examine the complex issues surrounding the family in today's world. Research in sexuality and information for the general health care provider is essential as patients need this information and many times, health care providers are ill-equipped to provide it. There are approximately four million new parents every year who are depending on us.

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Appendix A

Intimacy, Libido, Depressive Symptoms and Marital Satisfaction in Postpartum Couples

The time after having a baby is both exciting and tiring, and filled with changes. Relationship quality at this time is important but sometimes is difficult for a couple to achieve. So that we can find out more, we are asking couples who delivered between July and December 2007 to fill in this questionnaire, telling us about themselves and their experiences since the birth of their baby.

All information you give us in the questionnaire will be STRICTLY CONFIDENTIAL and all findings from the study will be presented in anonymous form.

The research team is based at Drexel University College of Nursing and Health Professions in Philadelphia. If you have any questions about the questionnaire or would like to know more about the research, please telephone Rose Marie Kunaszuk at 610 316 8739 or email at ***rowife@gmail.com***.

We realize that life is very busy after you have a baby, but if you could take the time to fill in the questionnaire, answering as many questions as you can, we would be very grateful.

Thank you for your help.

Background Information
Please circle your choice or fill in the blanks.

Your age _____
Your gender 1. Male 2. Female
Racial Categories 1. American Indian or Alaskan Native
2. Asian
3. Black or African American
4. Native Hawaiian or Other Pacific Islander
5. White
Ethnicity 1. Hispanic or Latino
2. Not Hispanic or Latino
Household income 1. <30,000
2. 30,000 to 50,000
3. 50,001 to 75,000
4. 75,001 to 100,000
5. >100,001
Occupation _____
Employment status (outside the home)
1. full-time
2. part-time
3. unemployed
Education (number of years, e.g. 12 years for high school graduate) _____
Age and sex of other children
Oldest child: Age _____ Sex_____ School Grade_____
2nd child: Age _____ Sex_____ School Grade_____
3rd child: Age _____ Sex_____ School Grade_____
4th child: Age _____ Sex_____ School Grade_____
How long in current relationship in years _____
How many times have you been married? _____
Household is back to normal as of now
1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree
Do you have help with child care?
1. No help
2. Live in
3. Full Time day
4. Part Time daily
5. Part Time not daily
6. Occasional
7. Babysitter Evening

Women only

General Information

How many times have you been pregnant? _____

What date was your baby born? _____

Did you have an epidural?

1. No
2. Yes

What type of delivery did you have?

1. Caesarean section

1a. 1st time

1b. repeat

2. Vaginal delivery
3. Vacuum assisted or forceps delivery

Did you have any stitches? (vaginal delivery only)

1. No
2. Yes

If yes, how long did it take for your stitches to heal so that you felt comfortable?

2a. less than 2 weeks

2b. 3-4 weeks

2c. 5-6 weeks

2d. over 7 weeks

2e. stitches healed, but not yet comfortable

2f. stitches still not healed

How satisfied are you with your appearance right now?

1. Very satisfied/Happy
2. Satisfied
3. OK
4. Not Satisfied
5. Very unsatisfied/Unhappy

How satisfied are you with your weight right now?

1. Very satisfied/Happy
2. Satisfied
3. OK
4. Not Satisfied
5. Very unsatisfied/Unhappy

Breastfeeding

In the first six weeks after the birth did you breastfeed your baby at all?

1. No
2. Yes (breastfed only)

2a. Less than 10 days

2b. More than 10 days

Are you breastfeeding now?

1. No
2. Yes (completely breastfeeding)
3. Yes (breast and bottle)

Have you experienced any breast problems since the birth of your baby?
1. No
2. Yes

If yes, what were the problems? ***(please check all that apply)***

2a. mastitis (infection in the breast)
2b. cracked nipples
2c. breast tenderness
2d. other *(please describe)* _____

Is there anything else you would like to tell us about health problems since the birth of your baby?

_____

Both men and women --Please circle your choice.

Baby and Children information

Would you say you have an "easy baby?"
1. Never
2. Occasionally
3. Usually
4. Most of the time
5. Always

Does the baby sleep through the night? 1. No
2. Yes

Are your other children adjusting to the baby?1. No
2. Yes

Are there any new difficulties with the other children since the arrival of the baby?

_____

_____

General Health

In general, would you say that your health has been
1. Excellent
2. Very good
3. Good
4. Fair
5. Poor

Do you feel that you have any health condition that interferes with your sexual functioning?
1. No
2. YesIf yes, what is it? _____

Since the birth of the baby, has your doctor told you that you have a new condition?
1. No
2. YesIf yes, what is it? _____

Since the birth of the baby, how many days have you spent in bed due to illness? _____
Since the birth of the baby, how many days have you cut down your activities due to illness? _____
How many times each night do you get up? _____
How tired do you feel?

1. A little tired
2. Tired
3. Extremely tired

Have you ever been diagnosed with depression?

1. No
2. Yes

Attitudes and Feelings

Here are some statements about sex during the end of pregnancy and in the first six weeks postpartum Tell me what you think or feel.

It is ok to have sexual intercourse at the end of pregnancy (after week 27).
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

It is perfectly safe to have sexual intercourse at the end of pregnancy (after week 27).
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

It is ok to have sexual intercourse before the first menses (or period) after the delivery.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

It is not necessary to wait to have sexual intercourse 6 weeks after the delivery.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Having sexual intercourse at the end of pregnancy (after week 27) will hurt the baby.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Having sexual intercourse too soon after the delivery makes healing more difficult.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Having sexual intercourse affects the quality of breast milk.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Sexual intercourse while lactating (having milk in the breasts) is messy and unpleasant.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Sexual intercourse while bleeding is messy and unpleasant.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Sexual intercourse while bleeding is dangerous.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

One of my highest priorities after the birth is getting back to an active sex life.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I feel comfortable (emotionally, physically, or both) having sexual intercourse when one of us is at the end of pregnancy (after 27 weeks).
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

How my couple relationship is NOW.

My partner listens to me when I need someone to talk to.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We enjoy spending time with other couples.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I am satisfied with the level of affection in our relationship.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

My partner helps me clarify my thoughts and feelings.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We enjoy the same recreational activities.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

My partner has all of the qualities I've always wanted in a mate.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I can state my feelings without him/her getting defensive.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

As a couple, we usually "keep to ourselves."
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I feel our level of affection is just routine.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

When having a serious discussion, it seems we have little in common.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I share in few of my partner's interests.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

There are times when I do not feel a great deal of love and affection for my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I often feel distant from my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We have few friends in common.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I am able to tell my partner when I want sexual intimacy.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I feel "put-down" in a serious conversation with my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We like playing and having fun together.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Every new thing I have learned about my partner has pleased me.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

My partner can really understand my hurts and joys.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Having time together with friends is an important part of our shared activities.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Because of my partner's lack of caring, I "hold back" my sexual interest.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I feel it is useless to discuss some things with my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We enjoy the out of doors together.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
My partner and I understand each other completely.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
I feel neglected at times by my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
Many of my partner's closest friends are also my closest friends.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
Sexual expression is an essential part of our relationship.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
My partner seldom tries to change my ideas.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
We seldom find time to do fun things together.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
My partner has some negative traits that bother me.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
I sometimes feel lonely when we're together.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
My partner disapproves of some of my friends.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
My partner seems disinterested in sex.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
We have an endless number of things to talk about.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
We share few of the same interests.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
I have some needs that are not being met by my relationship.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

How my couple relationship was BEFORE the BIRTH (the past 9 months).

My partner listened to me when I needed someone to talk to.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
We spent time with other couples.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
I was satisfied with the level of affection in our relationship.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
My partner often helped me clarify my thoughts and feelings.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
We often enjoyed the same recreational activities.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
My partner had all of the qualities I've always wanted in a mate.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree
I could state my feelings without him/her getting defensive.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We were more social as a couple.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Our level of affection was just routine.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

When having a serious discussion, we had little in common.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I shared more of my partner's interests.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I felt a great deal of love and affection for my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I felt distant from my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We had more friends in common.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I was able to tell my partner when I wanted sexual intimacy.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I felt "put-down" in a serious conversation with my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We played and having fun together more often.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Every new thing I learned about my partner pleased me.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

My partner really understood my hurts and joys.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Having time together with friends was an important part of our shared activities.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Because of my partner's caring, I expressed my sexual interest.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I felt it was useless to discuss some things with my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We didn't spend much time out of doors together.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

My partner and I really didn't understand each other completely.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I felt neglected at times by my partner.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Many of my partner's closest friends were also my closest friends.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Sexual expression was an essential part of our relationship.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

My partner seldom tried to change my ideas.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We seldom found time to do fun things together.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

My partner had some negative traits that bothered me.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I sometimes felt lonely even when we were together.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

My partner disapproved of some of my friends.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

My partner seemed disinterested in sex.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We had an endless number of things to talk about.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

We shared few of the same interests.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

I had some needs that were not met by my relationship.
1. Strongly Disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

A. How satisfied are you with the sexual aspect of your relationship with your partner?
1. Dissatisfied 2. Somewhat dissatisfied 3. Neutral 4. Somewhat satisfied 5. Satisfied

*Sexual activity refers to sexual caressing, genital stimulation (including masturbation) or intercourse***.**

B. Over the past month, approximately how many times did you engage in sexual activity either alone or with your partner?
1. Never 2. 1 - 2 times a month 3. 3 - 4 times a month 4. More than once a week

C. Over the past month, did your partner approach you for sex? 1. No 2. Yes

Please ***mark only one grid****, the YES grid or the NO grid.*

IF YES,***How often did you accept?***
And when you accepted, what was your level of enthusiasm?
Please mark only one X in the box across from the frequency and under the desire.

FREQUENCY No enthusiasm or did not participate.				
	LEVEL OF DESIRE Participated solely/primarily out of obligation	Participated with some interest, but little sexual enthusiasm	Receptive to partner's approach, interested sexually	Sexually enthusiastic and encouraging
Infrequent (less than half the time)				
Often (half the time or more, but not always)				
Always				

IF NO, ***If your partner <u>had</u> approached you during the last month for sex, how often would you have accepted? And if you would have accepted, how enthusiastic would you have been?***

Please mark only one X in the box across from the frequency and under the desire.

FREQUENCY Would have had no enthusiasm or would not have participated.				
	LEVEL OF DESIRE Would have participated solely/primarily out of obligation	Would have participated with some interest, but with little sexual enthusiasm	Would have been receptive to partner's approach, interested sexually	Would have been sexually enthusiastic and encouraging
Infrequent (less than half the time)				
Often (half the time or more, but not always)				
Always				

D. Over the past month, how frequently did you do anything to encourage sex with your partner?

1. Never 2. 1 - 2 times a month 3. 3 - 4 times a month 4. More than once a week

E. Over the past four weeks, how frequently have you wanted to engage in some kind of sexual activity, either with or without a partner?

1. Never 2. 1 - 2 times a month 3. 3 - 4 times a month 4. More than once a week

F. How strong was your desire to engage in sex?

Please answer this question even if you did not actually engage in any sexual activity but were aware of wanting to be sexual in some way.

Please mark only one X in the box across from the frequency and under the desire.

FREQUENCY Never wanted to have sex				
	LEVEL OF DESIRE Not intense at all (indifferent, neutral, fleeting)	Mildly intense	Moderately intense	Extremely intense
1 - 2 times/month				
3 - 4 times/month				
More than once a week				

G. Over the past month, how often have you wanted physical affection other than sex, e.g. touching, holding, kissing? How intense would you say was your desire for physical affection?

Please mark only one X in the box across from the frequency and under the desire.

FREQUENCY Never wanted to have physical affection			
	LEVEL OF DESIRE Mildly intense	Moderately intense	Extremely intense
Less than once a week			
More than once a week but not every day			
Daily			

H. Over the past month, how satisfied were you with your overall level of sexual desire/interest?

1. Dissatisfied 2. Somewhat dissatisfied 3. Neutral 4. Somewhat satisfied 5. Satisfied

I. Over the past month, when you thought about sex or were approached for sex, how distressed (worried, concerned, guilty) were you about your level of desire?

1. Never distressed 2. Mildly distressed 3. Moderately distressed 4. Markedly distressed 5. Extremely/severely distressed

J. How often have you thought about sex over the past month?

1. Never 2. 1 - 2 times a month 3. 3 - 4 times a month 4. More than once a week

K. When you thought about sex, what was your level of interest/strength of desire in having sex?

Please mark only one X in the box across from the frequency and under the desire.

FREQUENCY Never thought about sex				
	LEVEL OF DESIRE Never associated with desire	Mild desire	Moderate desire	Intense desire
1 - 2 times/month				
3 - 4 times/month				
More than once a week				

L. Over the past month, how did you react to sexually suggestive material (e.g. love scenes in movies and on television, erotic pictures/stories in magazines/books)?

1. Not interested 2. Mildly interested 3. Moderately interested 4. Highly interested

M. Over the past month, when you had sex, how often did you become aroused (sexually excited, wet, lubricated, have an erection)?

1. No sexual activity
2. Never became aroused
3. Infrequent (less than half the time)
4. Often (half the time or more, but not always)
5. Always

N. Over the past month, when you had sex, how easily did you become aroused (sexually excited, wet, lubricated, having an erection) in response to sexual stimulation?

1. No sexual activity
2. Not at all aroused
3. Aroused with difficulty
4. Aroused somewhat easily
5. Easily aroused

O. Over the past month, once you started to become sexually aroused, did you want to receive more stimulation? YES or NO

If yes, how strong was your desire to be further/more sexually stimulated?

1. No sexual activity
2. No desire/Never aroused
3. Little desire
4. Moderate desire
5. Strong desire

P. Over the past month, when you had sex, how often did you have an orgasm? How easy was it for you to have an orgasm?

Please mark only one X in the box across from frequency and under difficulty.

FREQUENCY No sexual activity		
Not able to achieve orgasm		
	LEVEL OF DIFFICULTY Achieved majority of orgasms with some difficulty	Achieved majority of orgasms without difficulty
Infrequent (less than half the time)		
Often (half the time or more, but not always)		
Always		

Q. How long after the birth did you resume sexual intercourse? *(If you have not resumed sexual intercourse but have attempted to resume, please say when you attempted it)*

1. weeks 1-3 2. weeks 4-6 3. weeks 7 or 8
4. month 35. month 46. month 5
7. month 68. month 79. month 8

R. Compared with before the most recent pregnancy, would you say that sex was now

1. more frequent 2. about the same 3. less frequent 4. can't say/don't know

S. Overall, would you say that your sex life has changed since the birth?

1. improved 2. about the same 3. less good 4. can't say/don't know

T. Overall, how satisfied do you think your partner has been with your sexual relationship since the birth?

1. very satisfied
2. somewhat satisfied
3. neither satisfied nor dissatisfied
4. somewhat dissatisfied
5. very dissatisfied
6. can't say/don't know

Over the past week:

I was bothered by things that usually don't bother me.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I felt that I could not shake off the blues even with help from my family and friends.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I did not feel like eating; my appetite was poor.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I felt that I was just as good as other people.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I had trouble keeping my mind on what I was doing.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I felt depressed.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I felt everything I did was an effort.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I felt hopeful about the future.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I thought my life had been a failure.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I felt fearful.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

My sleep was restless.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I was happy.

1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I talked less than usual.
1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I felt lonely.
1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

People were unfriendly.
1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I enjoyed life.
1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I had crying spells.
1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I felt sad.
1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I felt that people disliked me.
1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

I could not get going.
1. Rarely/none 2. Sometimes 3. Occasionally 4. Most of the time

Check the dot on the scale below which best describes the degree of happiness, everything considered, of your present marriage. The middle point "happy" represents the degree of happiness which most people get from marriage and the scale gradually ranges from one side, those few who are very unhappy, to the other side, to those few who experience extreme joy or felicity.

_____._____._____._____._____._____._____._____
Very Unhappy Happy Perfectly Happy

State the approximate extent of agreement or disagreement between you and your mate on the following items.

Handling family finances
1. Always Disagree 4. Occasionally Disagree
2. Almost Always Disagree 5. Almost Always Agree
3. Frequently Disagree 6. Always Agree

Matters of recreation
1. Always Disagree 4. Occasionally Disagree
2. Almost Always Disagree 5. Almost Always Agree
3. Frequently Disagree 6. Always Agree

Demonstration of affection
1. Always Disagree 4. Occasionally Disagree
2. Almost Always Disagree 5. Almost Always Agree
3. Frequently Disagree 6. Always Agree

Friends
1. Always Disagree 4. Occasionally Disagree
2. Almost Always Disagree 5. Almost Always Agree
3. Frequently Disagree 6. Always Agree

Sex relations
1. Always Disagree 4. Occasionally Disagree
2. Almost Always Disagree 5. Almost Always Agree
3. Frequently Disagree 6. Always Agree

Conventionality (right, good or proper conduct)
1. Always Disagree 4. Occasionally Disagree
2. Almost Always Disagree 5. Almost Always Agree
3. Frequently Disagree 6. Always Agree

Philosophy of life
1. Always Disagree4. Occasionally Disagree
2. Almost Always Disagree 5. Almost Always Agree
3. Frequently Disagree 6. Always Agree

Ways of dealing with in-laws
1. Always Disagree 4. Occasionally Disagree
2. Almost Always Disagree 5. Almost Always Agree
3. Frequently Disagree 6. Always Agree

When disagreements arises, they usually result in

1. Husband giving in 2. Wife giving in 3. Agreement by mutual give and take

Do you and your mate engage in outside interests together?

1. None of them 2. Few of them 3. Some of them 4. All of them

In leisure time do you generally prefer

1. To be on the go 2. To stay at home

Does your mate generally prefer to

1. To be on the go 2. To stay at home

Do you ever wish you had not married?

1. Never 2. Rarely 3. Occasionally 4. Frequently

If you had your life to live over, do you think you would

1. Marry the same person 2. Marry a different person 3. Not marry at all

Do you confide in your mate

1. Almost never 2. Rarely 3. In most things 4. In everything

Do you exercise or work out

1. Never 2. Rarely 3. Occasionally 4. Frequently

Do you like to ride a bicycle

1. Never 2. Rarely 3. Occasionally 4. Frequently

Do you like to hike

1. Never 2. Rarely 3. Occasionally 4. Frequently

Do you read for pleasure

1. Never 2. Rarely 3. Occasionally 4. Frequently

Do you enjoy cooking

1. No 2. Sometimes 3. Yes

Do you like chocolate or vanilla

1. Chocolate 2. Vanilla

Thank you!

Vita

Rose Marie Eckert Kunaszuk was born in February 1961 in Norristown, Pennsylvania. She earned an Associate Degree in Applied Science from Montgomery County Community College in 1984, and a Bachelor's Degree in Nursing at Hahnemann University in Philadelphia in 1992. In April 1995, she graduated from the Community Based Nurse Midwifery Education Program (CNEP) of The Frontier School of Midwifery and Family Nursing in Hyden, Kentucky and completed a Master's Degree in Nursing at Case Western Reserve University in Cleveland, OH. In September 2005, Rose Marie entered the inaugural class of the Doctor of Nursing Practice program at Drexel University's College of Nursing and Health Professions, graduating June 2009. She received a Certificate in Epidemiology and Biostatistics in December 2006 from Drexel University's School of Public Health. She has been a clinical instructor at Hahnemann University for Associate Degree students in Medical-Surgical Nursing and at the University of Pennsylvania for Bachelor Degree students in Obstetrical Nursing. Rose Marie has worked as a staff nurse for many years on a labor and delivery unit. She has been practicing full scope midwifery since 1995 in a variety of settings.

Rose Marie has been married for more than 25 years and has 2 daughters and 1 son. She is a member of the American College of Nurse Midwives, the American College of Obstetricians and Gynecologists, Sigma Theta Tau National Honor Society for Nursing, the Eastern Nursing Research Society, the Society for Sex Therapy and Research, and the Society for the Scientific Study of Sexuality. She holds licenses to practice midwifery in New Jersey and Pennsylvania.